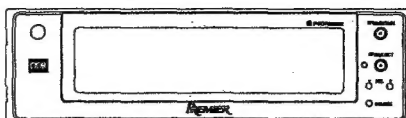


# Service Manual



●RS-D2/UC



OPTICAL DIGITAL REFERENCE SYSTEM  
SYSTEM CONTROL TUNER/CD

# RS-D2

UC,EW,ES

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply only the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.



## NOTE:

- See the service manual DEH-M980/UC (CRT1450) for the CD mechanism description, disassembly and circuit description.
- This device employs an inverter as the power supply for EL. The inverter has an output voltage reach approximately 200 volts(AC). Utmost care should be used not to suffer from a possible electric shock, accordingly.

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K-FFD.DEC. 1993 Printed in Japan

## CHAPTER 1

### ●CD Player Service Precautions

1. For pickup unit (CGY1020) handling, please refer to "Disassembly"(Fig.1). During replacement, handling precautions shall be taken to prevent an electrostatic discharge(Protection by a short pin).
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.

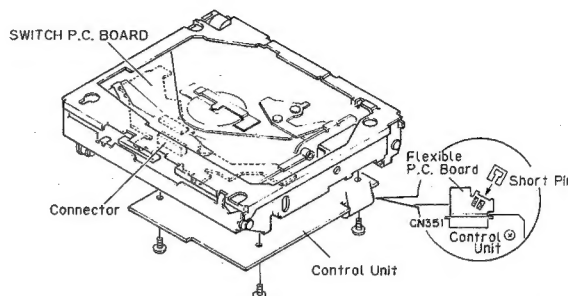


Fig.1

## SAFETY INFORMATION

### (UC MODEL)

#### CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

#### WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

### (EW MODEL)

#### 1. Safety Precautions for those who Service this Unit.

- Follow the adjustment steps (see pages 1-13 through 1-24) in the service manual when servicing this unit. When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.

#### Caution:

1. During repair or tests, minimum distance of 13cm from the focus lens must be kept.
2. During repair or tests, do not view laser beam for 10 seconds or longer.

2. A "CLASS 1 LASER PRODUCT" label is affixed to the rear of the player.

3. The triangular label is attached to the mechanism unit frame.

# Service Manual

ORDER NO.  
**CRT1801**

OPTICAL DIGITAL REFERENCE SYSTEM  
SYSTEM CONTROL TUNER/CD

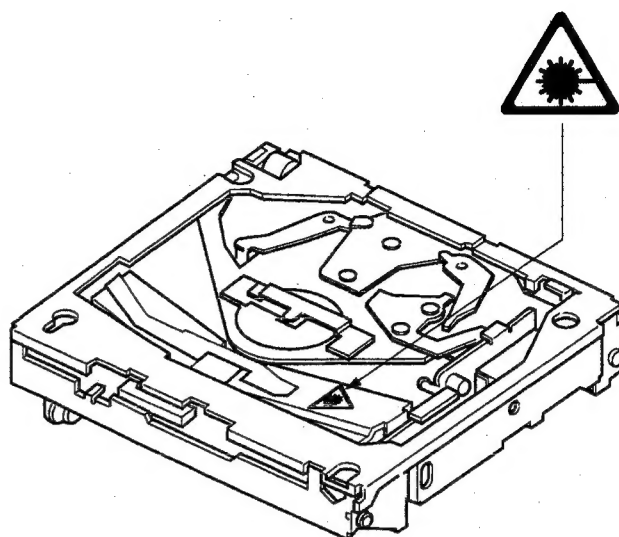
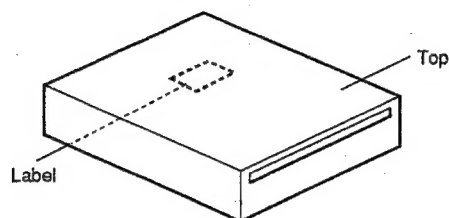
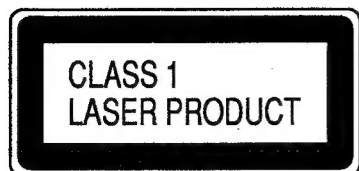
# RS-D2

**EW8**



● As to RS-D2/EW8, refer to CRT1555 (RS-D2/EW) because of the same contents.

**PIONEER ELECTRONIC CORPORATION** 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan  
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#### 4. Specifications of Laser Diode

Specifications of laser radiation fields to which human access is possible during service.

Wavelength = 785 nanometers

Radiant power = 69.7 microwatts (Through a circular aperture stop having a diameter of 80 millimeters)  
0.55 microwatts (Through a circular aperture stop having a diameter of 7 millimeters)

## 1. SPECIFICATIONS

### General

Power source .....	14.4 V DC (10.8 – 15.6 V allowable)
Grounding system .....	Negative type
Max. current consumption .....	1 A
Fuse .....	4 A
Dimensions	
(chassis) .....	178 (W) X 50 (H) X 157 (D) mm
(front face) .....	188 (W) X 58 (H) X 18 (D) mm
Weight (main unit) .....	1.9 kg
Weight (power source unit) .....	0.3 kg
Weight (SYSTEM COMMUNICATOR) .....	0.1 kg
Signal format	
(Sampling frequency) .....	44.1 kHz
(Number of quantization bits) .....	CD 16 bit linear : Exact CD 18 bit linear
Digital output .....	Optical output
Digital input .....	Optical input

### CD player

System .....	Compact disc audio system
Usable discs .....	Compact disc
Signal format	
(Sampling frequency) .....	44.1 kHz
(Number of quantization bits) .....	16 bit linear
Number of channels .....	2 (stereo)

### FM tuner

Frequency range(UC,ES) .....	87.9 – 107.9 MHz
Frequency range(EW,ES) .....	87.5 – 108 MHz
Usable sensitivity .....	8 dBf (0.7 $\mu$ V/75 $\Omega$ , mono)
50 dB quieting sensitivity .....	13 dBf (1.2 $\mu$ V/75 $\Omega$ , mono)
Signal-to-noise ratio .....	70 dB (IEC-A network)
Distortion .....	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response .....	30 – 15,000 Hz ( $\pm$ 3 dB)
Stereo separation .....	40 dB (at 65 dBf, 1 kHz)

### MW tuner

Frequency range(UC,ES) .....	530 – 1,710 kHz
Frequency range(EW,ES) .....	531 – 1,602 kHz
Usable sensitivity .....	18 $\mu$ V (25 dB) (S/N: 20 dB)
Selectivity .....	50 dB ( $\pm$ 9 kHz)

### LW tuner(EW)

Frequency range .....	153 – 281 kHz
Usable sensitivity .....	30 $\mu$ V (30 dB) (S/N: 20 dB)
Selectivity .....	50 dB ( $\pm$ 9 kHz)

### AUX (external input)

Frequency response .....	10 – 20,000 Hz (+0, -1 dB)
Distortion .....	0.005% (at 1 kHz, 1 V, 20 kHz, L.P.F.)
Signal-to-noise ratio .....	90 dB (at 1 kHz, 1 V, 20 kHz, L.P.F.)
Separation .....	85 dB (at 1 kHz, 1 V, 20 kHz, L.P.F.)

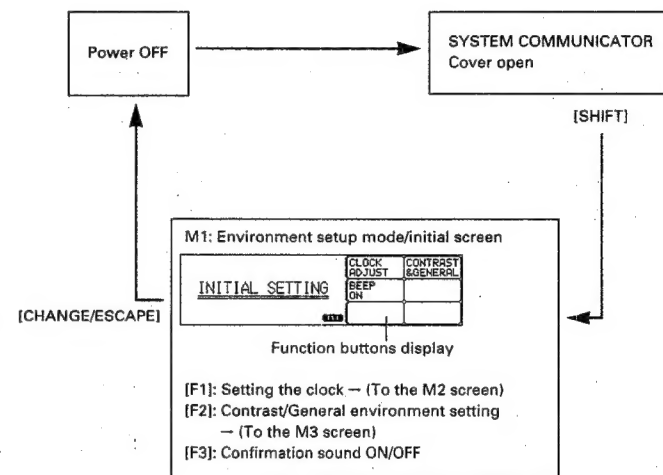


## ODR System — Reference Manual —

- > This Reference Manual gives a simple explanation of the functions of the ODR System (mainly audio adjustment functions) by using charts of the display.
- > The Reference Manual explains the operations using the SYSTEM COMMUNICATOR.
- > The buttons inside the cover cannot be used, even if the cover is open, when the SYSTEM COMMUNICATOR is being used as a wireless remote control unit. To use these buttons, install the SYSTEM COMMUNICATOR to the base and use it as a wired system.
- > The names of the buttons to be used in operations are indicated inside parentheses [ ]. (For example, Function button/3 is referred to as [F3].) For details on the names of buttons, please see "How to use this manual" (page iv) of the Owner's Manual.
- > Refer to the Owner's Manual for more details of the functions outlined in this manual.

### Environment setup mode

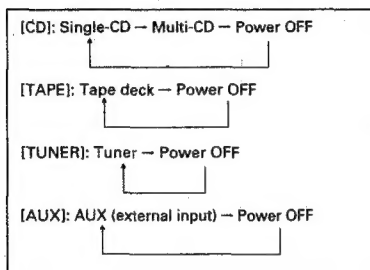
- > Use this mode to set the environment under which the ODR System is to be used.



- > [◀▶], [+/−] and [F] buttons to specify respective environment settings.
- > Operating the main unit allows the system to be changed to the environment setup mode even while the power is ON. (Hold down the SOURCE button of the main unit for at least 2 seconds after opening the cover of the SYSTEM COMMUNICATOR.)

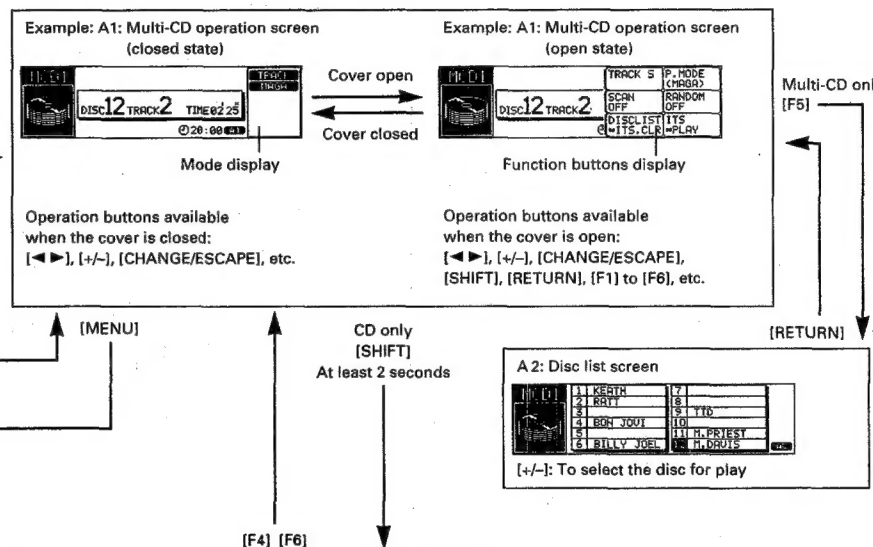
## Common/source operations

### Switching the source

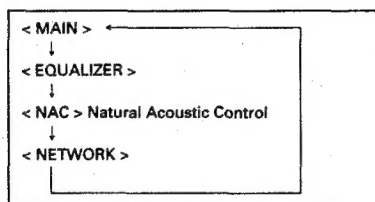


> RS-D2 doesn't have [TAPE] button.

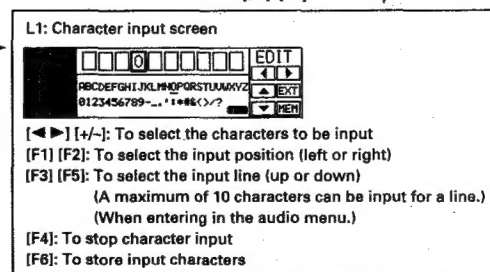
### Sound source operations screens



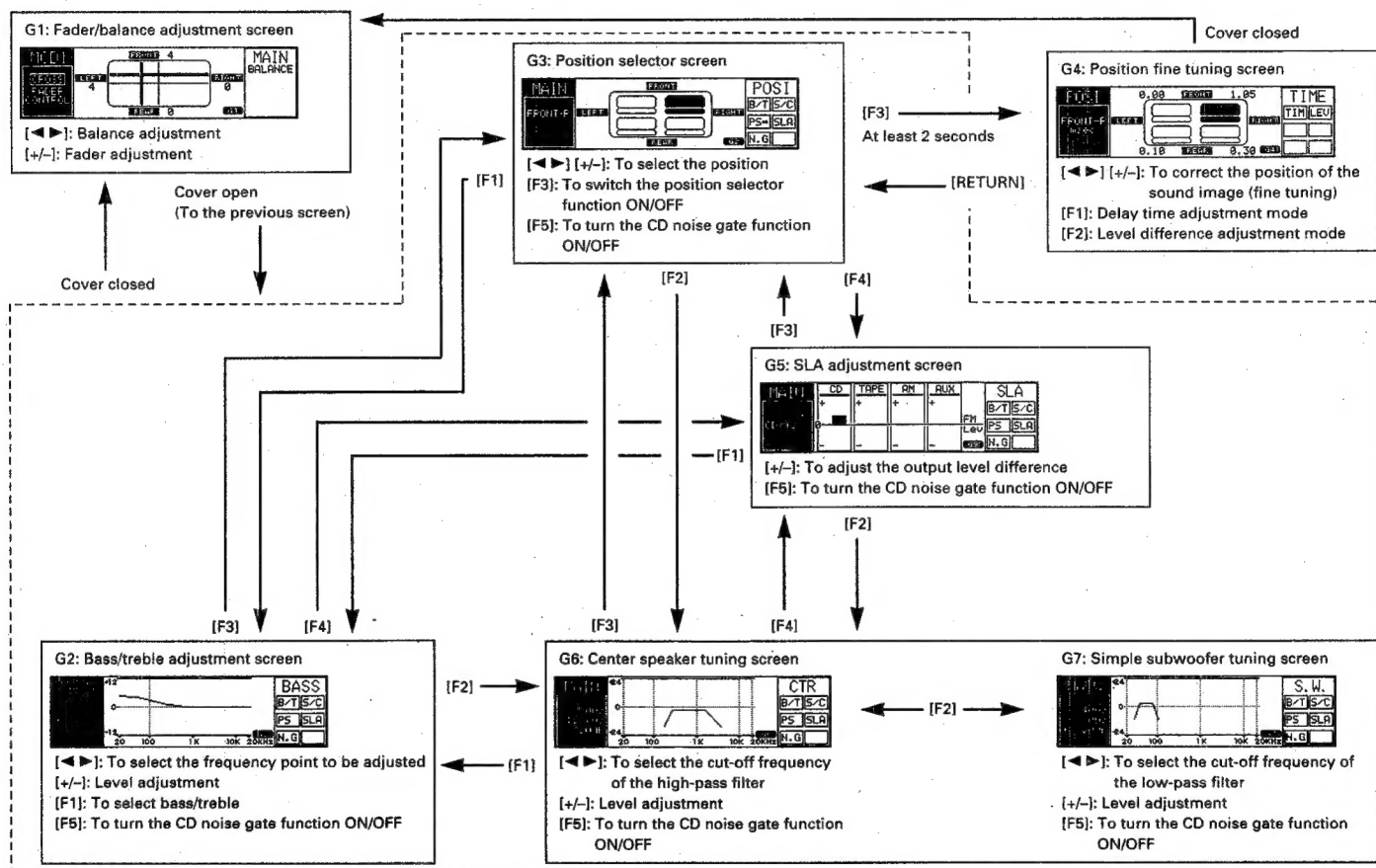
### Switching the audio menu



> See the explanations for the audio menu for more details.



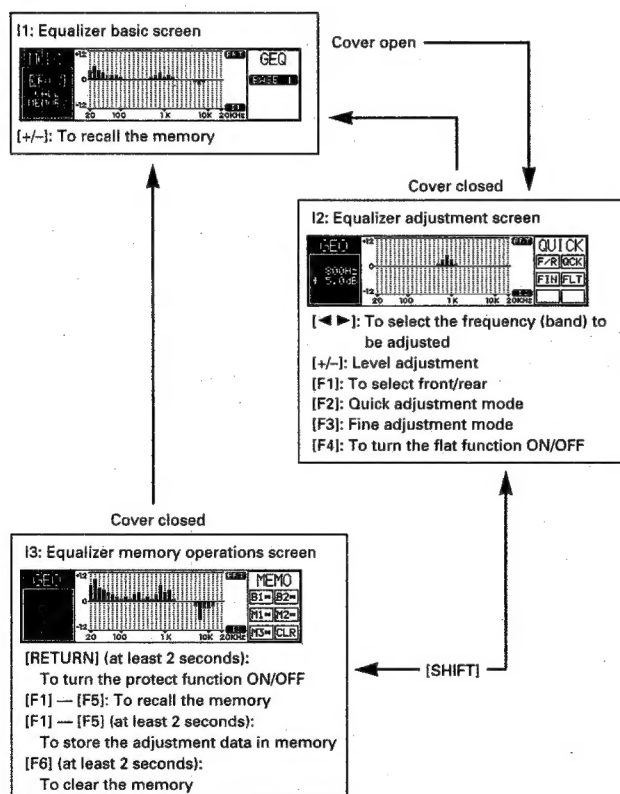
## Main menu &lt; MAIN &gt;



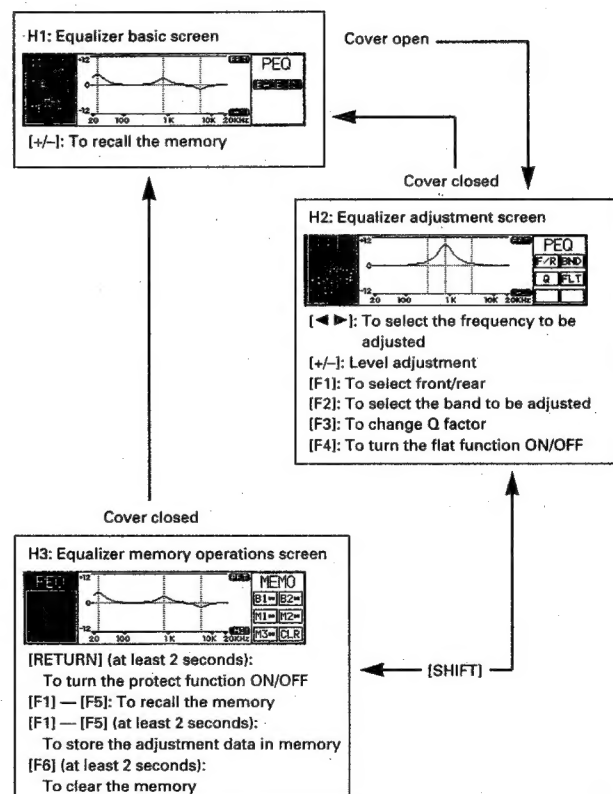
## Equalizer menu < EQUALIZER >

### Graphic equalizer

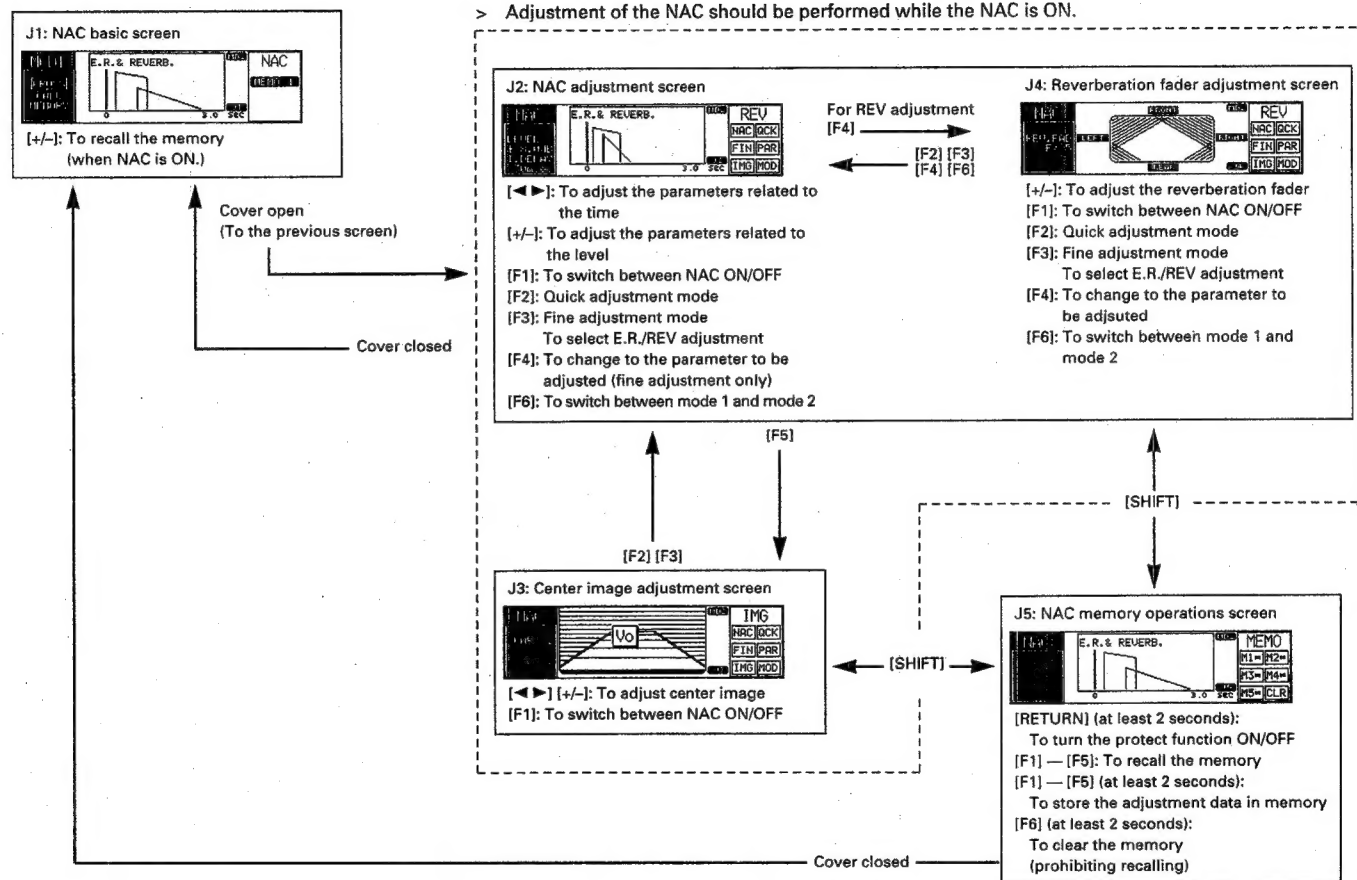
- > The illustrations below show examples of the 31 band graphic equalizer. The same operations can be performed with the 16 band graphic equalizer.



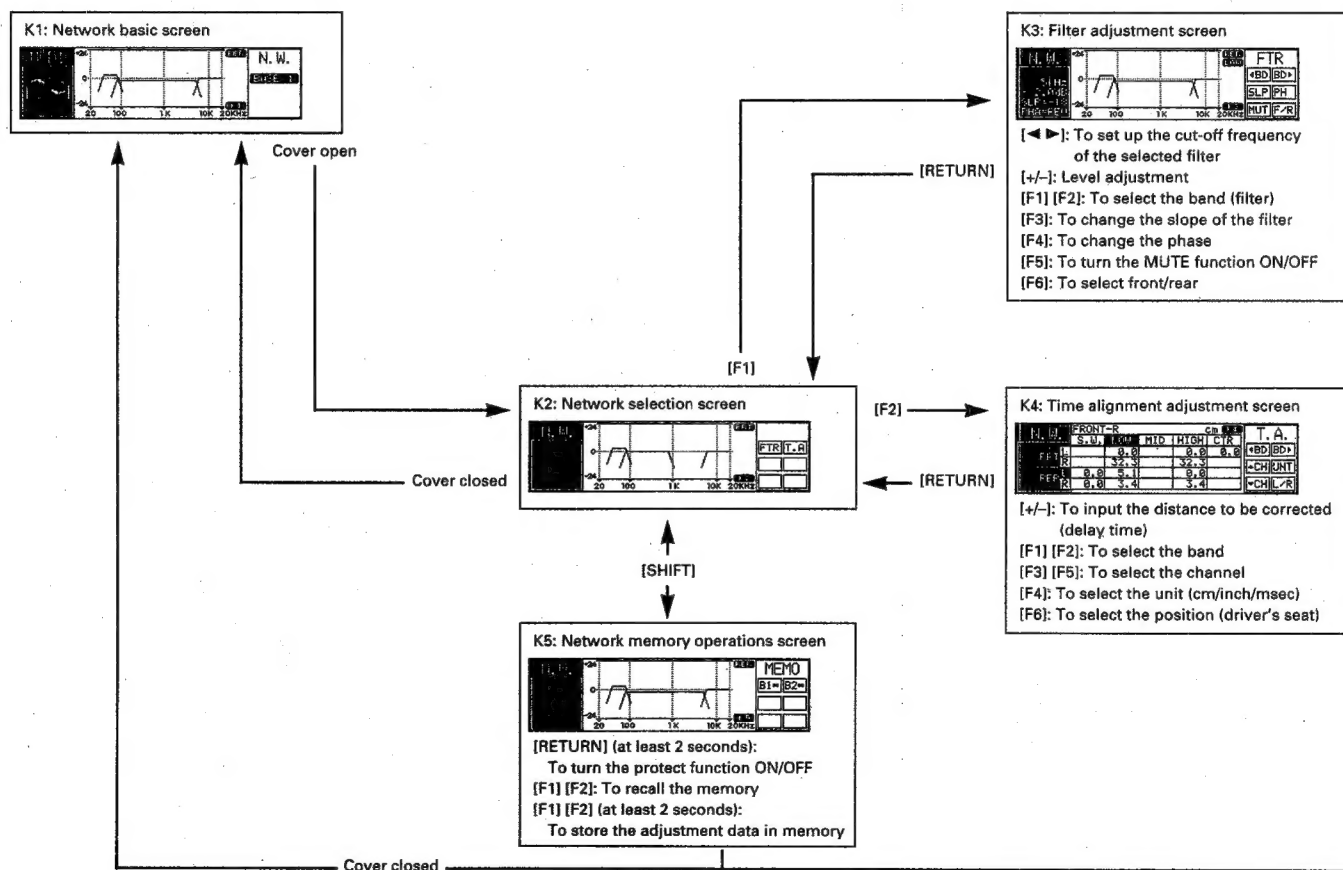
### Parametric equalizer



## Natural acoustic control menu < NAC >



## Network menu < NETWORK >



3. DISASSEMBLY

●Removing the Case

- 1.Remove the two screws A, and then remove the two holders.
- 2.Remove the three screws B, and then remove the case.

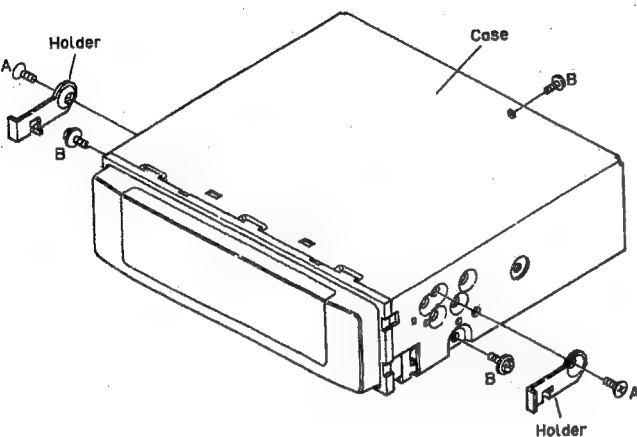


Fig.2

●Removing the CD Mechanism Module and the Grille Panel Assy

- 1.Remove the two screws.(Fig.3)
- 2.Disconnect the two stoppers indicated by arrows.(Fig.3)

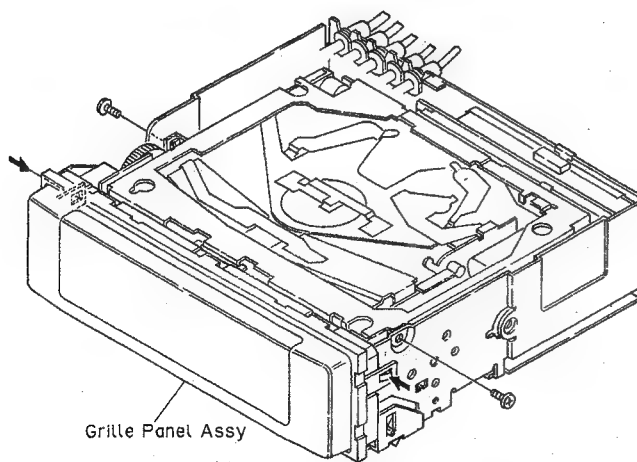


Fig.3

- 3.Remove the four screws.(Fig.4)
- 4.Disconnect the connector of CD mechanism module, and then remove the CD mechanism module.(Fig.4)
- 5.Disconnect the four connectors.(Fig.4)
- 6.Remove the grille panel assy.(Fig.4)

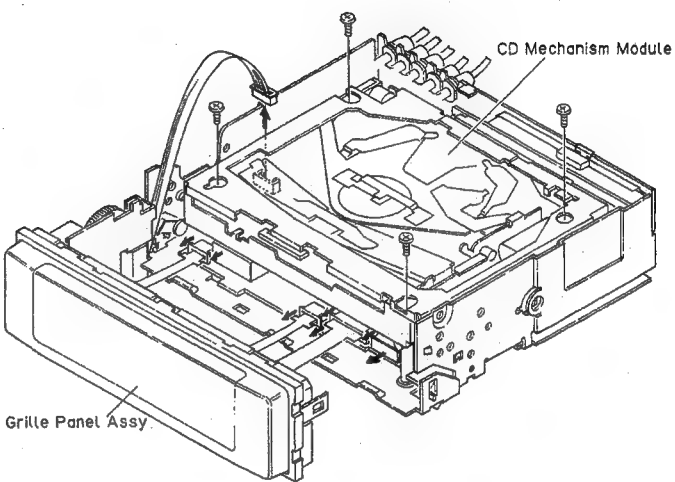


Fig.4

●Removing the Chassis Unit

- 1.Remove the screw C, screw J two screws E and screw D.
- 2.Unbend the tabs at four locations indicated by arrows.
- 3.Disconnect the stopper indicated by arrow, and then remove the holder.
- 4.Remove the screw F.
- 5.Remove the chassis unit.

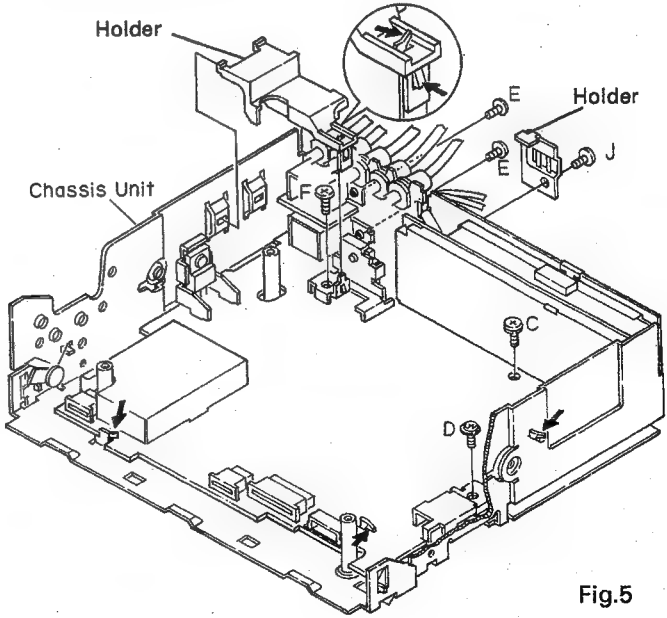


Fig.5

### ●Removing the Detach Grille Assy

- 1.While holding the tab of gear unit at locations indicated by black arrow.(Fig.6)
- 2.Press the detach grille Assy at locations indicated by white arrows.(Fig.6)
- 3.While holding down the lock button, pull the detach grille assy toward you.(Fig.7)

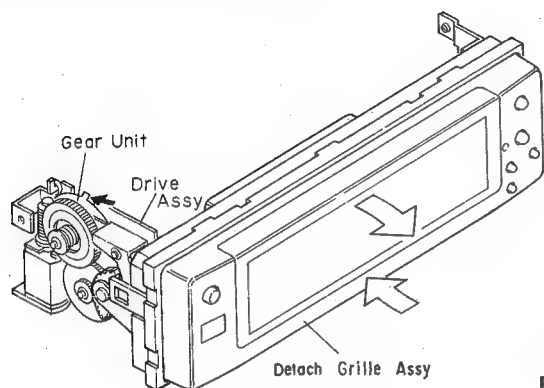


Fig.6

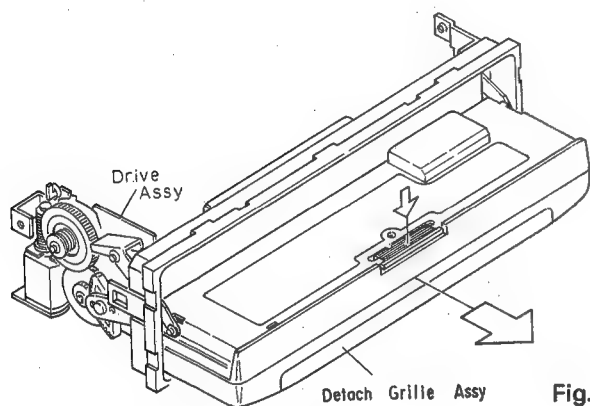


Fig.7

### ●Removing the Cover Unit

- 1.Remove the four screws.
- 2.Disconnect the four stoppers indicated by arrows.
- 3.Remove the cover unit.

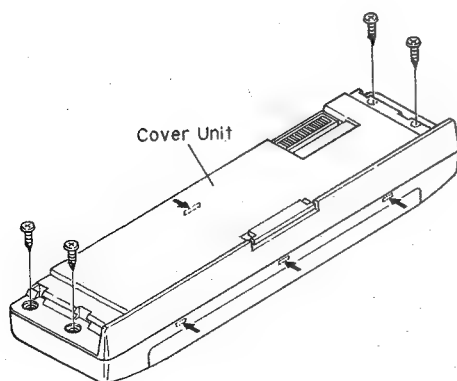


Fig.8

### ●Removing the Control P.C.Board

- 1.Disconnect the two connectors.
- 2.Remove the four screws.
- 3.Remove the solder, and then remove the control P.C.board.

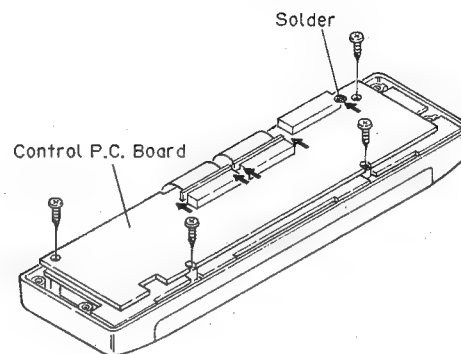


Fig.9

### ●Removing the Driver P.C.Board

- 1.Remove the three screws.
- 2.Remove the driver P.C.board.

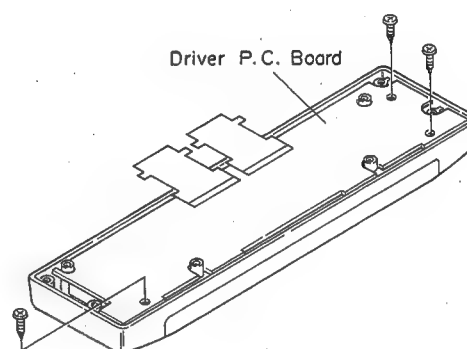


Fig.10



### ●Removing the EL

- 1.Remove the solder.
- 2.Unbend the tabs at six locations indicated by arrows.
- 3.Remove the holder.
- 4.Remove the EL.

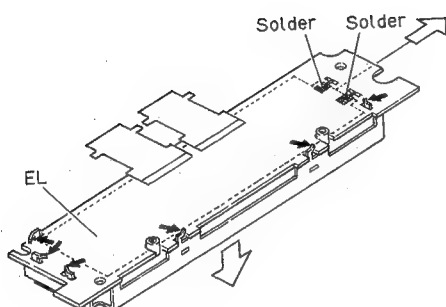


Fig.11

### ●Removing the Holder Unit

- 1.Remove the three washers.
- 2.Remove the screw, and then remove the holder unit.

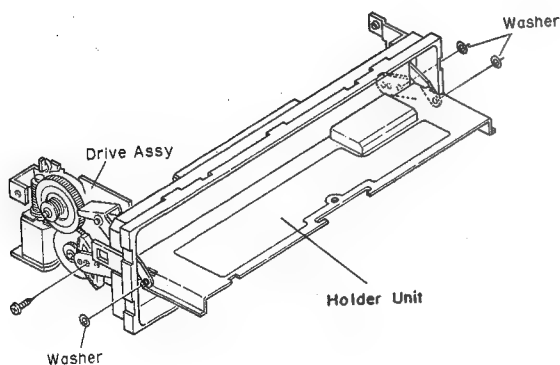


Fig.12

### ●Removing the Lower Case

- 1.Remove the battery cover, and then remove the battery.
- 2.Remove the door unit.
- 3.Remove the two screws G and four screws H.
- 4.Disconnect the four stoppers indicated by arrows.
- 5.Remove the lower case.

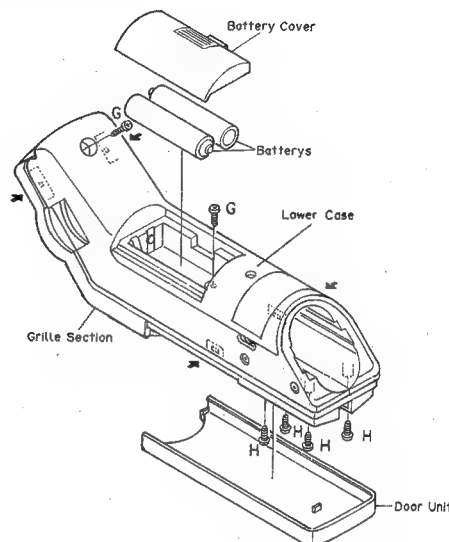


Fig.13

### ●Removing the Switch P.C.Board(A) and Main P.C.Board

- 1.Remove the four screws.
- 2.Disconnect the two connectors.
- 3.Remove the switch P.C.board(A) and main P.C.board.

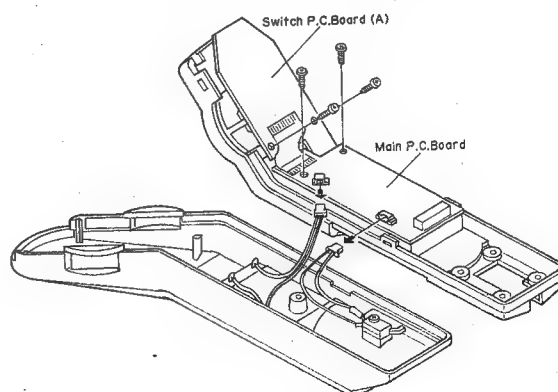


Fig.14

## 4. ADJUSTMENT

### 4.1 CD PLAYER SECTION

#### 1)Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFOUT (approx. 2.5V) instead of GND. If REFOUT and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.

Do not connect the negative probe of the measuring equipment to REFOUT and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFOUT with the channel 2 negative probe connected to GND.

And since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.

If by accident REFOUT comes in contact with GND, immediately switch the regulator or power OFF.

- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and /or electrical shocks to the system when making adjustment.
- Test mode starting procedure  
Switch ACC, back-up ON while pressing the OPEN/DETACH and SOURCE keys together.
- Test mode cancellation  
Switch ACC, back-up OFF.

- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit. Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.

\*During PLAY, even if the eject button is pressed, the disc will not be ejected and the unit will remain in the PLAY mode.

\*The unit will not load a disc.

When the unit malfunctions this way, either re-position the light source, move the unit or cover the photo transistor.

- When loading and unloading discs during adjustment procedures, always wait for the disc to be properly clamped or ejected before pressing the another key. Otherwise, there is risk of the actuator being destroyed.
- Turn power off when pressing the button TRACK UP or the button TRACK DOWN key for focus search in the test mode. (Or else lens may stick and the actuator may be damaged.)

Key of Free Space Assy	Function
CHANGE/ESCAPE	Regulator ON/OFF
TRACK UP	FWD kick
TRACK DOWN	REV kick
F-3	Tracking close
F-2	Tracking open
F-6	Focus close
F-4	Focus open
F-5	Jump-Off
F-1	1/10/32 jump/carriage move switching

- SINGLE/10TRK/32TRK will continue to operate even after the key is released. Tracking closed the moment C-MOVE is released.
- JUMP MODE resets to SINGLE as soon as power off.



### ●Measuring Equipment and Jigs

Adjustment	Measuring equipment & jigs
1 Grating Adjustment (Rough adjustment)	Oscilloscope, clock driver, grating adjustment filter (bandpass filter)(GGF-133), AC millivoltmeter TCD-782 (or SONY TYPE4) Extension Cable:GGF1132,GGF1135
2 Tangential Skew Check (Fine adjustment)	Oscilloscope, screwdriver TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGF1135
3 Grating Adjustment	Oscilloscope, clock driver, two low-pass filters TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGF1135
4 FE Bias Adjustment	Oscilloscope TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGF1135
5 RF Offset Adjustment	Oscilloscope TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGF1135
6 TE Offset Adjustment-1	DC voltmeter Extension Cable:GGF1132,GGF1135
7 Tracking Balance Adjustment-1	Oscilloscope TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGF1135
8 Focus Servo Loop Gain Adjustment	Oscillator, gain adjustment filter (GGF-065), dual meter milli-voltmeter TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGF1135
9 Tracking Servo Loop Gain Adjustment	Oscillator, gain adjustment filter (GGF-065), dual meter milli-voltmeter TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGF1135
10 TE Offset Adjustment-2	DC voltmeter Extension Cable:GGF1132,GGF1135
11 Tracking Balance Adjustment-2	Oscilloscope TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGF1135

● Adjustment Point

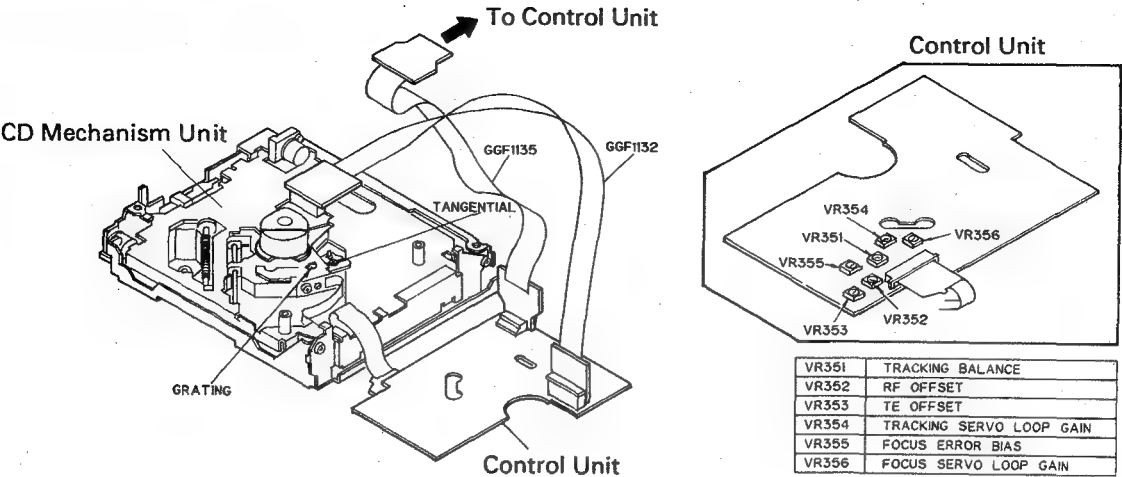


Fig.15

● Test Point

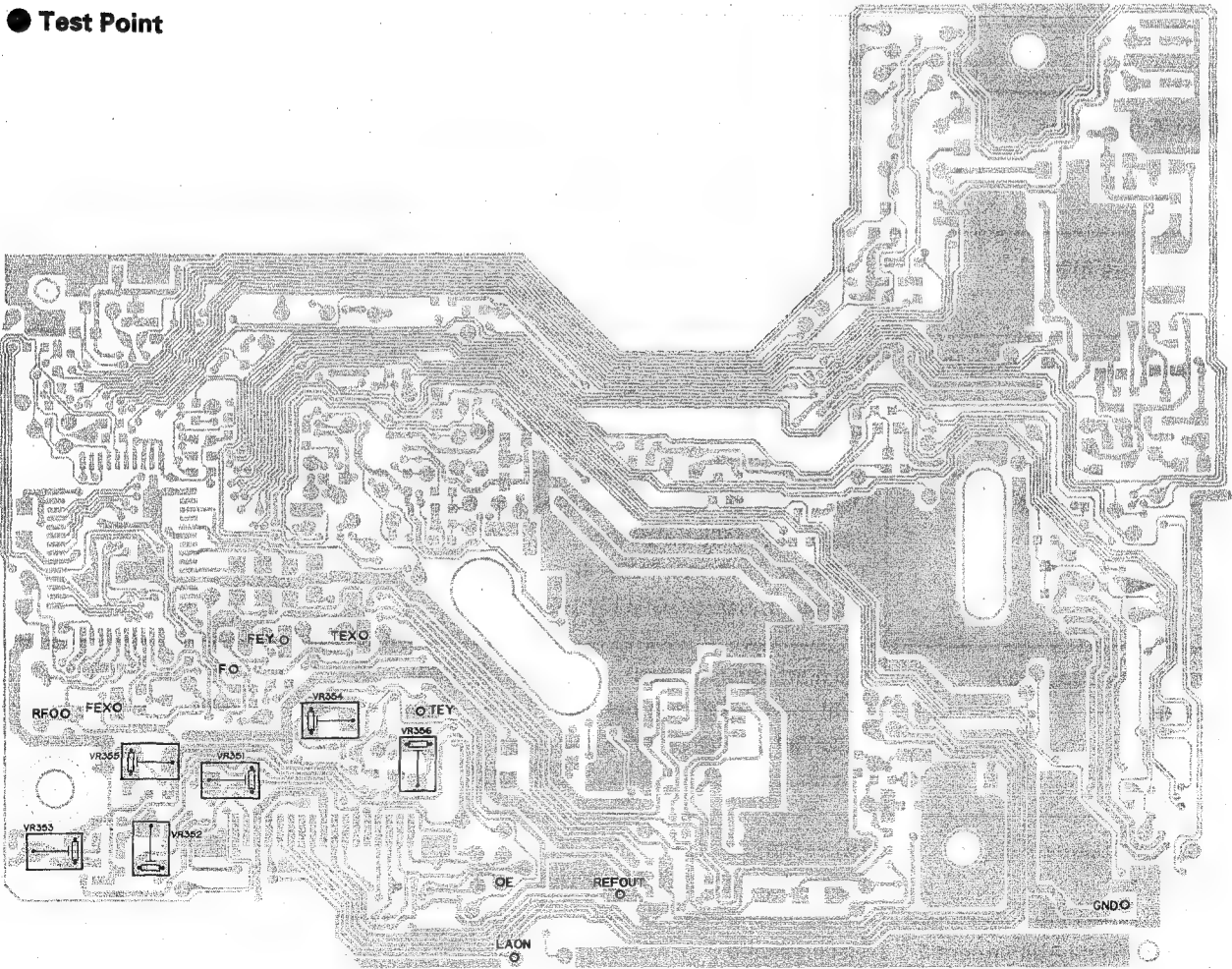
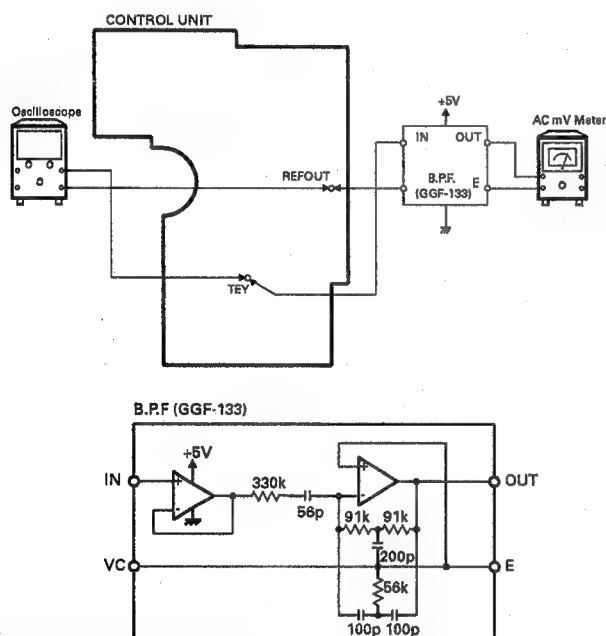


Fig.16

## 1 Grating Adjustment (Rough adjustment)

- **Purpose:**  
The grating may need adjustment in a replaced pick-up unit.
- **Maladjustment symptoms:**  
No disc playback ; track jumping.
- **Measuring equipment / jigs** · Oscilloscope, clock driver, grating adjustment filter (band-pass filter)(GGF-133), AC millivoltmeter.
- **Measuring point** · TEY
- **Test disc and setting** · TCD-782 (or SONY TYPE 4)  
· Test mode.
- **Adjustment position** · Pick-up grating adjustment hole.

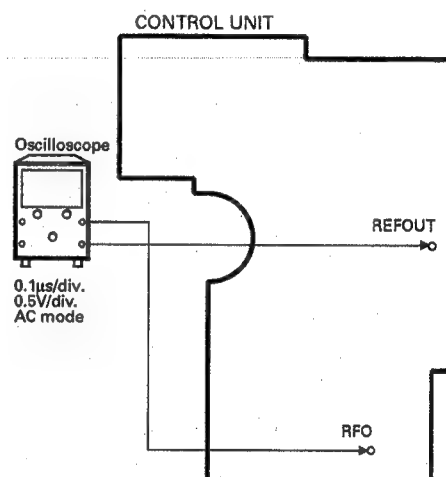


### Adjustment Procedure

1. Switch regulator ON in test mode, and load a disc.
2. Use **TRACK UP** or **TRACK DOWN** key as required to bring pick-up at the adjusting hole on control unit (Tune TNO 19). (TYPE 4: TNO 14)  
Match with TNO 19 (TYPE 4: TNO 14) when releasing the control unit.
3. Press the **F·6** key to close focus.
4. While monitoring the TEY filter output by AC millivoltmeter, turn the grating adjustment hole slowly. The AC voltage increases and decreases while turning the screw. Search for the minimum voltage level. (This corresponds to the position where the grating is on a track, and is referred to as the null point.)
5. Then while monitoring TEY by oscilloscope, turn the driver slowly clockwise from the null point (as seen from under the pick-up) until the first wave form peak amplitude is reached.

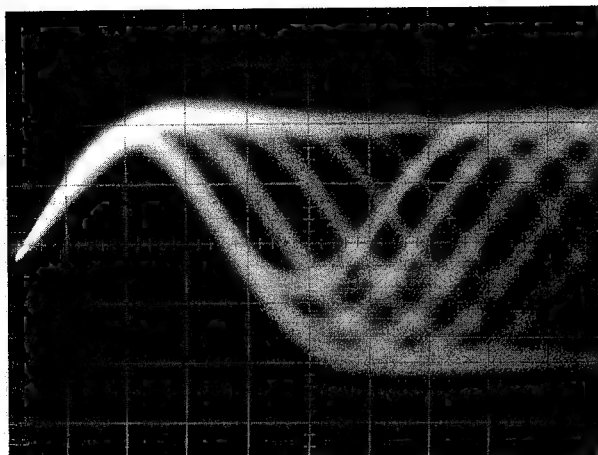
## 2 Tangential Skew Check

- **Purpose:**  
To check whether tangential skew has been misaligned or not when replacing the pick-up unit.
- **Maladjustment symptoms:**  
No disc playback ; track jumping.
- **Measuring equipment / jigs** · Oscilloscope, screwdriver
- **Measuring point** · RFO
- **Test disc and setting** · TCD-782 (or SONY TYPE 4)  
· Normal mode
- **Adjustment position** · Pick-up tangential adjustment screw



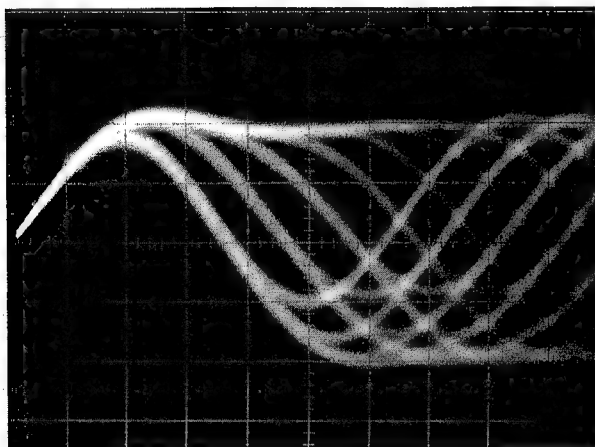
### Adjustment Procedure

1. Check that the pick-up position does not differ from that at the same time of grating adjustment. (TCD-782: TNO 19, TYPE 4: TNO 14)
2. Turn the tangential adjustment screw to obtain a good RF waveform eye pattern. Turn the adjustment screw both clockwise and counterclockwise to points where the eye pattern deteriorates, and take the midway point as the adjustment point. As a general guide, look for an overall clear waveform, and one of the diamond shapes in the eye pattern. The diamond shapes should appear in fine lines at the point of optimum adjustment. Take care not to knock the pick-up with the screwdriver at this stage. (This kind of accident can result in loss of focus.) (See Waveform 1,2)
3. Apply "screw-lock" to the tangential adjustment screw.
4. After adjusting tangential skew, also adjust the grating.



NG

Waveform 1



OK

AC Mode  
0.5V/div.  
0.1μs/div.

Waveform 2

### 3 Grating Adjustment(Fine adjustment)

#### • Purpose:

The grating may need adjustment in a replaced pick-up unit.

#### • Maladjustment symptoms:

No disc playback; track jumping.

#### • Measuring equipment / jigs

• Oscilloscope, clock driver, two low-pass filters

#### • Measuring point

• ELPF output, FLPF output

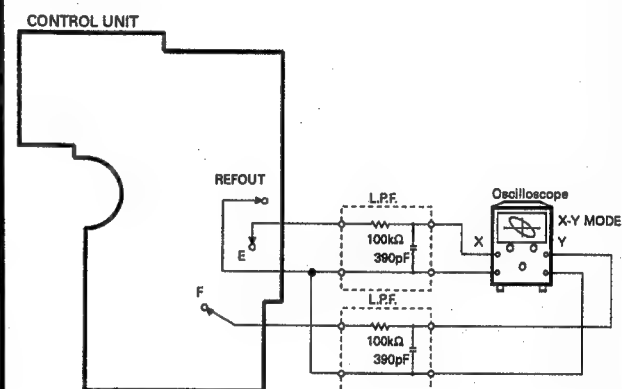
#### • Test disc and setting

• TCD-782 (or SONY TYPE 4)

• Test mode

#### • Adjustment position

• Pick-up grating adjustment hole



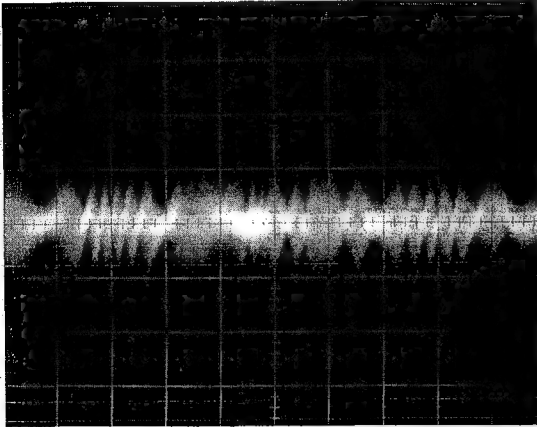
#### Adjustment Procedure

1. Switch regulator ON in test mode, and load a disc.
2. Use **TRACK UP** or **TRACK DOWN** key as required to bring pick-up at the adjusting hole on control unit (Tune TNO 19). (TYPE 4: TNO 14)  
Match with TNO 19 (TYPE 4: TNO 14) when releasing the control unit.
3. Press the **F·6** key to close focus.
4. With the E low-pass filter output connected to the X axis of the oscilloscope, and the F low-pass filter output connected to the Y axis, apply an input in AC mode and observe the Lissajous figure.  
(See Waveform 3-8)
5. Using the driver, adjust the Lissajous figure to a single line (or as close as possible).
6. Switch regulator OFF and remove the filters.

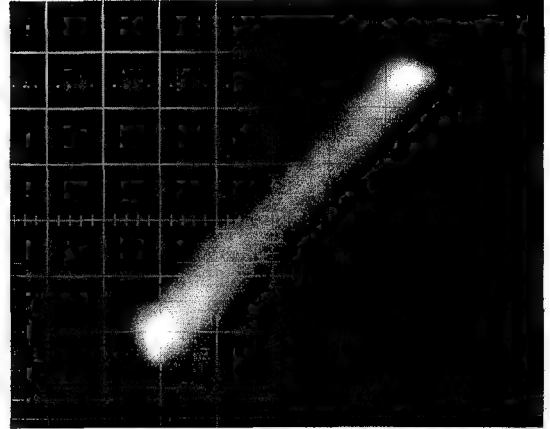
TEY waveform 5ms/div, 0.5V/div.

Null Point

Lissajous figure (AC input)  
Horizontal axis E 20mV/div.  
Vertical axis F 20mV/div.



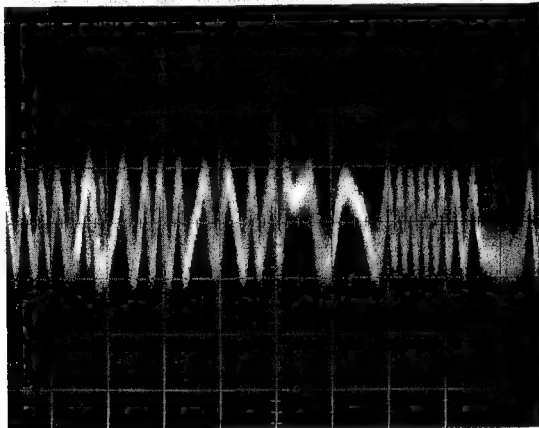
Waveform 3



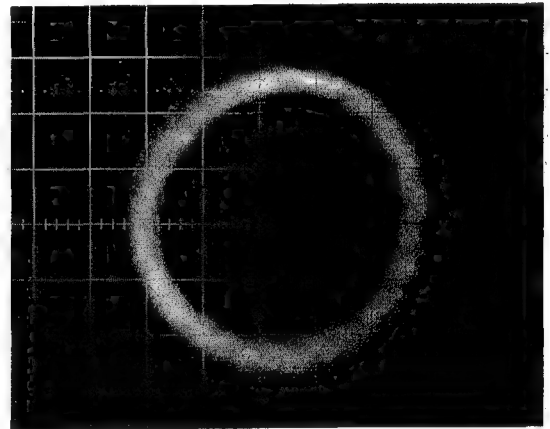
Waveform 4



"Rough" adjustment



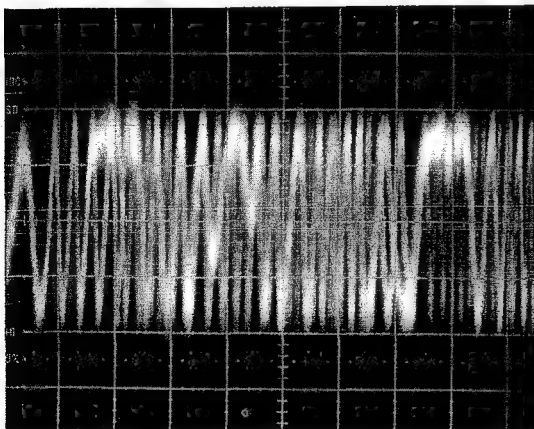
Waveform 5



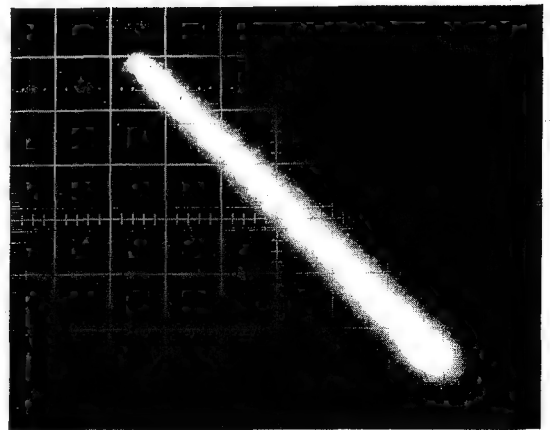
Waveform 6



Final adjustment



Waveform 7



Waveform 8



#### 4 FE Bias Adjustment

**Purpose:**

To adjust the focus servo bias to an optimum value.

**Maladjustment symptoms:**

Focus closing difficulty, poor playability.

**Measuring equipment / jigs**

• Oscilloscope

**Measuring point**

• RFO

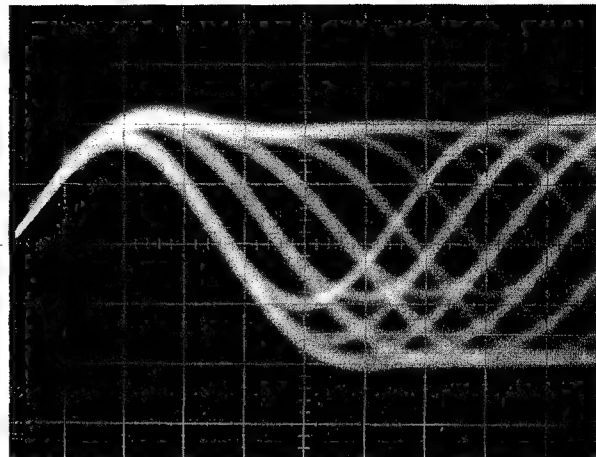
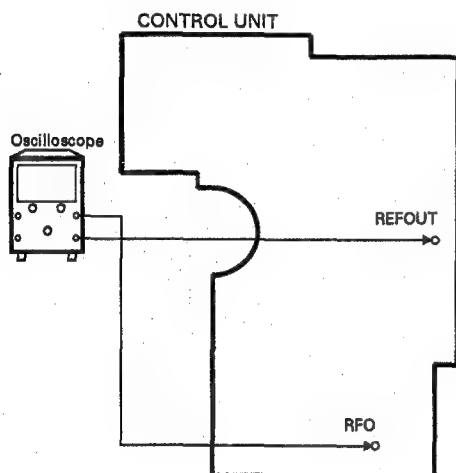
**Test disc and setting**

• TCD-782 (or SONY TYPE 4)

• Normal mode

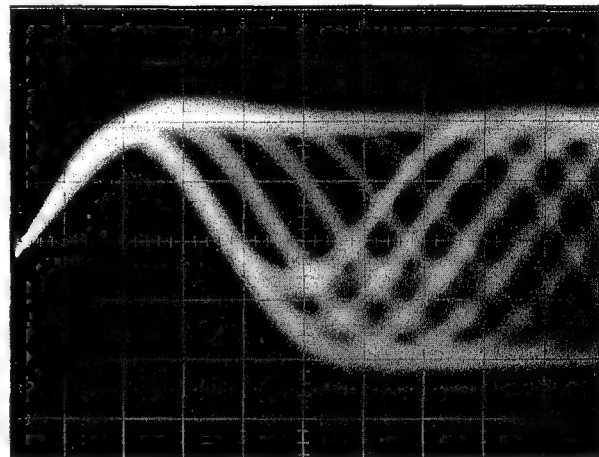
**Adjustment position**

• VR355(FEB)



OK

Waveform 9



AC Mode

Before adjustment

Waveform 10

**Adjustment Procedure**

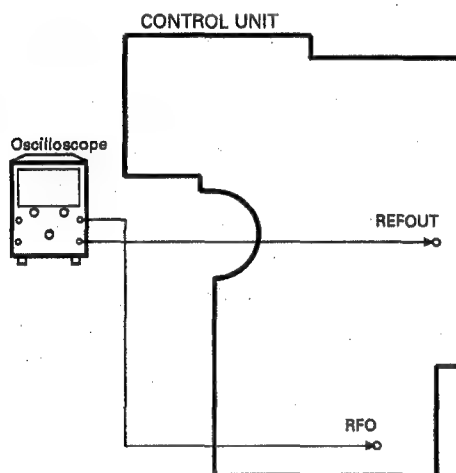
1. Play in normal mode.

2. Observe RFO in respect to REFOUT in the oscilloscope, and adjust VR355(FEB) to obtain maximum RF and eye pattern. (See Waveform 9, 10)

## 5 RF Offset Adjustment

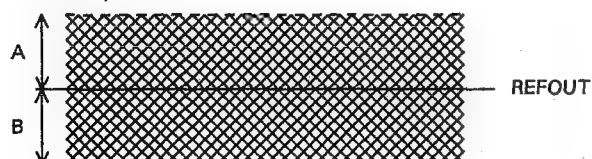
- **Purpose:**  
To adjust the RF amplifier offset to a suitable value.
- **Maladjustment symptoms:**  
Focus closure fails readily.

- **Measuring equipment / jigs** · Oscilloscope
- **Measuring point** · RFO
- **Test disc and setting** · TCD-782 (or SONY TYPE 4)  
· Normal mode
- **Adjustment position** · VR352(RFO)



### Adjustment Procedure

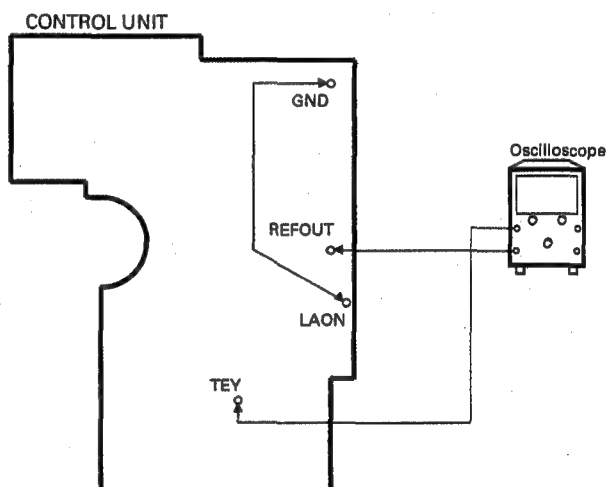
1. Play tune TNO 19 in normal mode. (TYPE 4: TNO 14)
2. Use VR352 to adjust the RFO waveform so that REFOUT appears at the center. (A-B must not exceed 100 mV.)



## 6 TE Offset Adjustment-1

- **Purpose:**  
To adjust the electrical offset of the tracking servo to zero
- **Maladjustment symptoms:**  
Search times too long, carriage run-away.

- **Measuring equipment / jigs** · DC voltmeter
- **Measuring point** · TEY
- **Test disc and setting** · No Disc  
· Test mode
- **Adjustment position** · VR353(TEO)



### Adjustment Procedure

1. Connect LAON to GND.
2. Switch regulator ON while in test mode.
3. Using VR353(TEO), adjust the TEY output DC voltage in reference to REFOUT to a value of  $0 \pm 25 \text{ mV}$ .
4. Switch regulator OFF.

## 7 Tracking Balance Adjustment-1

### • Purpose:

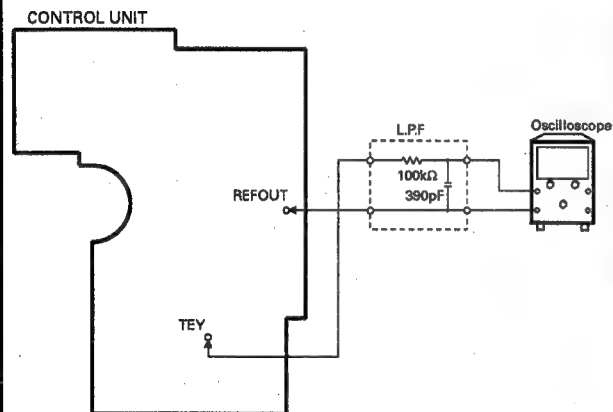
To adjust the tracking servo offset to zero.

### • Maladjustment symptoms:

Search times too long, poor playability, carriage run-away.

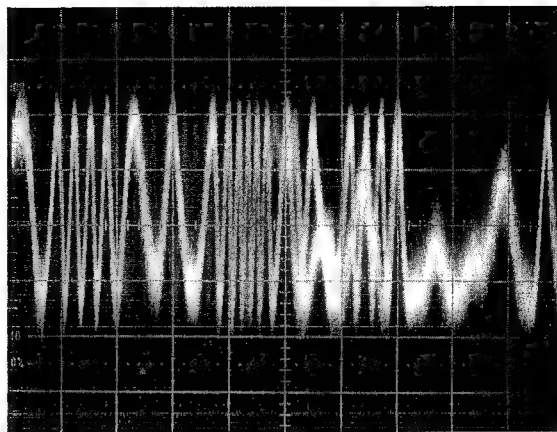
### • Measuring equipment / jigs

- Measuring point      • TEY (Tracking error signal)
- Test disc and setting      • TCD-782 (or SONY TYPE 4)
- Adjustment position      • Test mode
- Adjustment position      • VR351 (T.BAL)



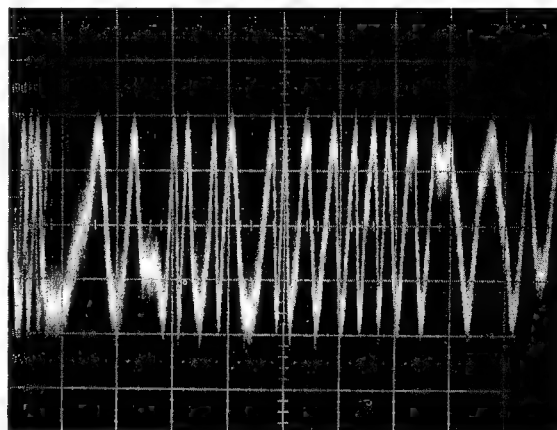
### Adjustment Procedure

1. Set the test disc (TCD-782). Switch regulator ON.
2. Using the **TRACK UP** or **TRACK DOWN** key, move the pick-up to about the center of the signal surface.
3. Press the **F-6** key to close focus.
4. Using an oscilloscope, observe the TEY signal in respect to REFOUT.  
Then adjust VR351 (T.BAL) to set the positive and negative amplitudes to the same levels.  
(See Waveform 11-13)
5. Switch the power OFF.



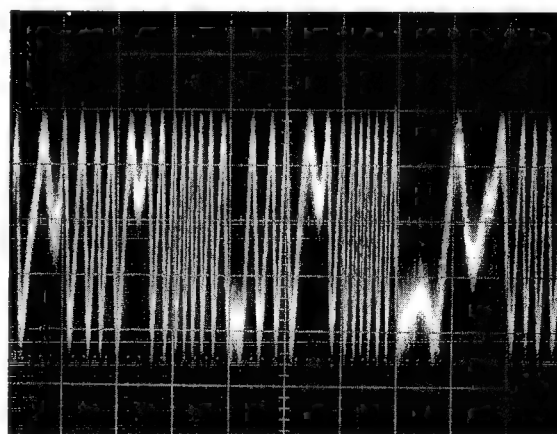
+ 5% NG

Waveform 11



± 0% OK

Waveform 12



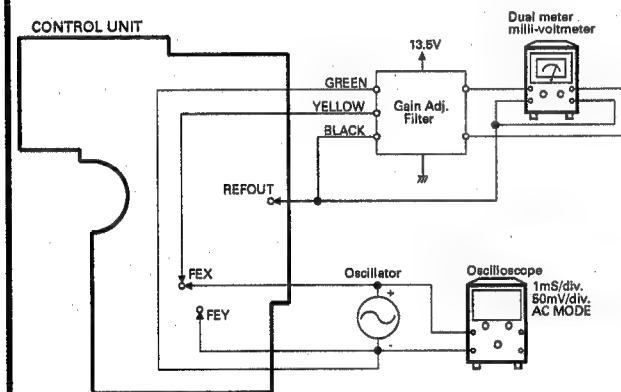
- 5% NG

10ms/div.  
0.5V/div.  
DC Mode

Waveform 13

## 8 Focus Servo Loop Gain Adjustment

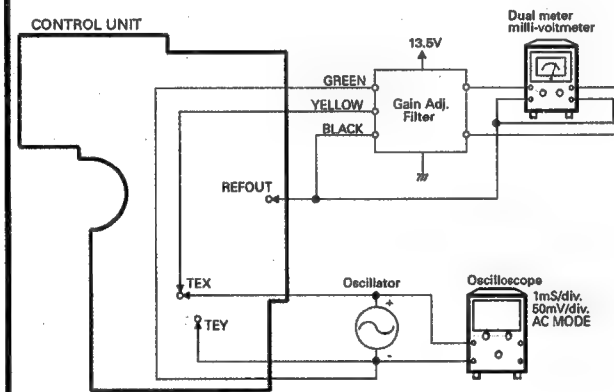
- **Purpose:**  
To adjust the focus servo loop gain to an optimum value.
- **Maladjustment symptoms:**  
Poor playability, reduced resistance to vibration, focus closure fails readily.
- **Measuring equipment / jigs** • Oscillator, gain adjustment filter (GGF-065), dual meter milli-voltmeter
- **Measuring point** • FEX, FEY
- **Test disc and setting** • TCD-782 (or SONY TYPE 4)  
• Normal mode
- **Adjustment position** • VR356(FG)

**Adjustment Procedure**

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 19 in normal mode. (TYPE 4: TNO 14)
3. Set the oscillator to 1kHz, and observe the FEX/FEY output in the oscilloscope. Adjust the oscillator output to obtain a FEX/FEY output of 100mVp-p.
4. Adjust VR356(FG) to obtain a milli-voltmeter difference of  $0 \pm 0.5$ dB.

## 9 Tracking Servo Loop Gain Adjustment

- **Purpose:**  
To adjust the tracking servo loop gain to an optimum value.
- **Maladjustment symptoms:**  
Poor playability, reduced resistance to vibration.
- **Measuring equipment / jigs** • Oscillator, gain adjustment filter (GGF-065), dual meter milli-voltmeter.
- **Measuring point** • TEX, TEY
- **Test disc and setting** • TCD-782 (or SONY TYPE 4)  
• Normal mode
- **Adjustment position** • VR354(TG)

**Adjustment Procedure**

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 19 in normal mode. (TYPE 4: TNO 14)
3. Set the oscillator to 1.4kHz, and observe the TEX/TEY output in the oscilloscope. Adjust the oscillator output to obtain a TEX/TEY output of 300mVp-p.
4. Adjust VR354(TG) to obtain a milli-voltmeter difference of  $0 \pm 0.5$ dB.

## 10 TE Offset Adjustment-2

- **Purpose:**  
To adjust the electrical offset of the tracking servo to zero.
- **Maladjustment symptoms:**  
Search times too long, carriage run-away.
- **Measuring equipment / jigs** • DC voltmeter
- **Measuring point** • TEY
- **Test disc and setting** • No Disc  
• Test mode
- **Adjustment position** • VR353

**Adjustment Procedure**

Same as for TE offset adjustment-1, but with the DC voltage of the TEY output adjusted to  $0 \pm 50$ mV. The purpose of this additional adjustment is to correct any deviations generated when carrying out the tracing balance and tracking servo loop gain adjustments after completing TE offset adjustment-1.

## 11 Tracking Balance Adjustment-2

- **Purpose:**  
To adjust the tracking servo offset to zero.
- **Maladjustment symptoms:**  
Search times too long, poor playability, carriage run-away.
- **Measuring equipment / jigs** • Oscilloscope.
- **Measuring point** • TEY
- **Test disc and setting** • TCD-782 (or SONY TYPE 4)  
• Test mode
- **Adjustment position** • VR351

**Adjustment Procedure**

Steps 1 thru 5 same as tracking balance adjustment-1. 6. Check that the level difference between the positive and negative amplitudes of the TEY signal is within 5% (See Waveform 11-13). If greater than 5%, adjust with VR351. 7. If further adjustment was necessary in step 6, repeat TE offset adjustment-2.

4.2 AUDIO/TUNER SECTION

NOTICE:  
Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.  
Z: Output impedance of SSG.

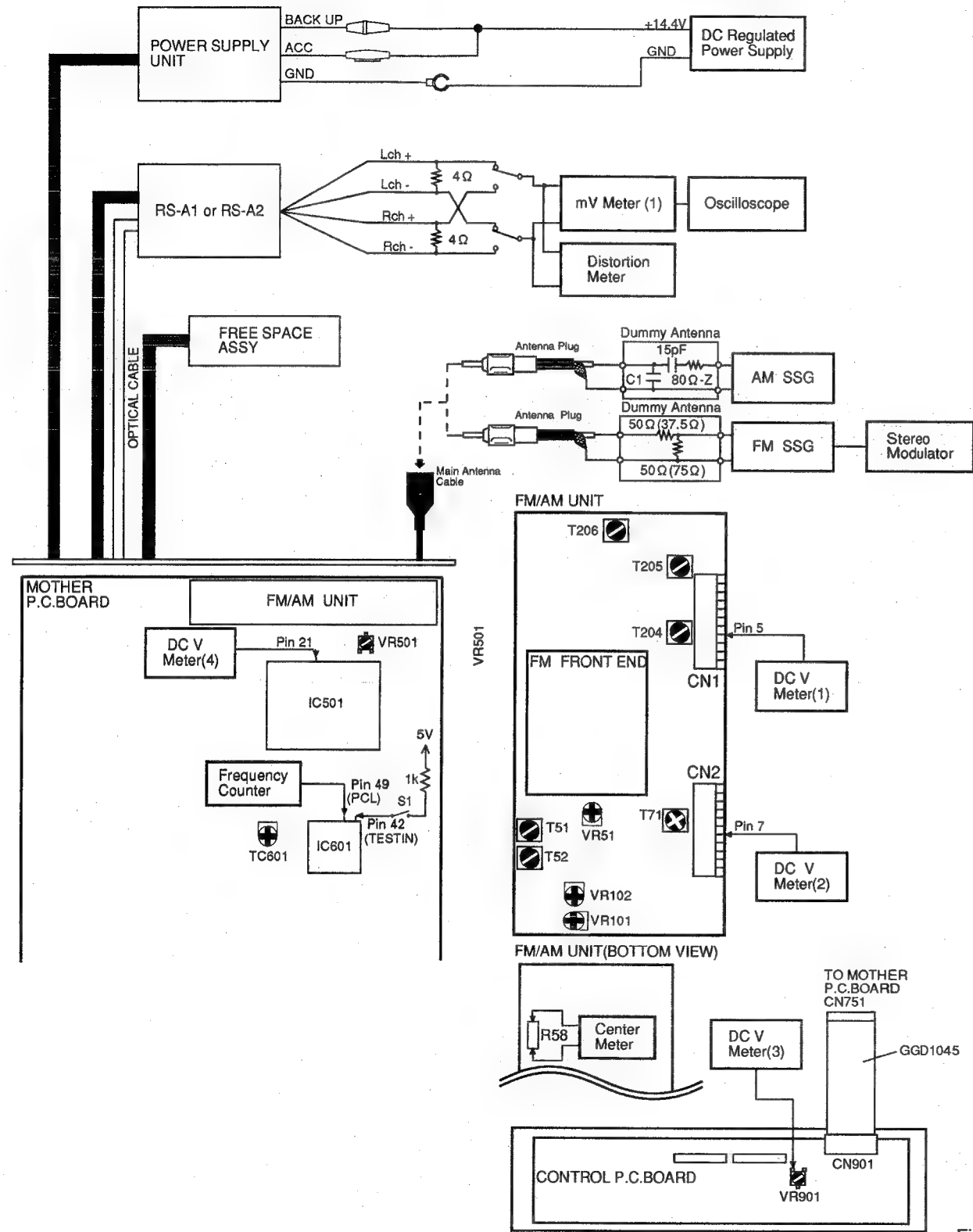


Fig.17

AM ADJUSTMENT(EW,ES)

	No.	AM SSG(400Hz,30%)		Displayed Frequency(kHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(kHz)	Level(dB $\mu$ V)			
TUN Volt	1			1,629		DC V Meter(1) : Less than 6.5V
IF	1	999	15	999	T204,T205, T206	mV Meter(1) : Maximum

AM ADJUSTMENT(UC,ES)

	No.	AM SSG(400Hz,30%)		Displayed Frequency(kHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(kHz)	Level(dB $\mu$ V)			
TUN Volt	1			1,710		DC V Meter(1) : Less than 6.5V
IF	1	1,000	15	1,000	T204,T205, T206	mV Meter(1) : Maximum

FM ADJUSTMENT(EW)

Modulation M1:MONO MOD., 400Hz 30%(22.5kHz Dev.)  
M2:MONO MOD., 400Hz 100%(75kHz Dev.)  
S1:STEREO MOD., 1kHz, L or R=30%, Pilot=10%(20.25kHz+7.5kHz Dev.)  
S2:STEREO MOD., 1kHz, L or R=90%, Pilot=10%(67.5kHz+7.5kHz Dev.)

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
IF	1	98.0925-98.0975 M2	65	98.1	T51	Center Meter:0
Distortion	1	98.1 M2	65	98.1	T52	Distortion Meter : Minimum
IFT	1	98.1 S2	65	98.1	T71	Distortion Meter : Minimum
Max. Mute	1	98.1 M1	65	98.1		mV Meter(1) : A (AUTO ON)
	2	98.1 M1	- $\infty$	98.1	VR102	mV Meter(1) : A-19dB
ARC	1	98.1 S1	39	98.1	VR101	mV Meter(1) : Separation 5dB
SD	1	98.1 M1	23	98.1	VR51	DC V Meter(2) : Approx. 5V (SEEK:ON)

FM ADJUSTMENT(UC,ES)

Modulation M1:MONO MOD., 400Hz 30%(22.5kHz Dev.)  
M2:MONO MOD., 400Hz 100%(75kHz Dev.)  
S1:STEREO MOD., 1kHz, L or R=30%, Pilot=10%(20.25kHz+7.5kHz Dev.)

	No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
		Frequency(MHz)	Level(dBf)			
IF	1	98.0925-98.0975 M2	65	98.1	T51	Center Meter : 0
Distortion	1	98.1 M2	65	98.1	T52	Distortion Meter : Minimum
IFT	1	98.1 M2	13	98.1	T71	Oscilloscope : Optimum Symmetry
Max. Mute	1	98.1 M1	65	98.1		mV Meter(1) : A (AUTO ON)
	2	98.1 M1	- $\infty$	98.1	VR102	mV Meter(1) : A-19dB
ARC	1	98.1 S1	39	98.1	VR101	mV Meter(1) : Separation 5dB
SD	1	98.1 M1	23	98.1	VR51	DC V Meter(2) : Approx. 5V (SEEK:ON)

**RDS SL ADJUSTMENT(EW)**

No.	FM SSG		Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
	Frequency(MHz)	Level(dBf)			
1	106.1 M2	52	106.1	VR501	DC V Meter(4) : $2.3V \pm 0.05V$

**SYSTEM CLOCK ADJUSTMENT**

No.	Adjustment Point	Adjustment Method (Switch Position)
1	TC601	Frequency Counter : $1.048576MHz \pm 2Hz$ (S1 : ON)

**LCD CONTRAST ADJUSTMENT**

No.	Adjustment Point	Adjustment Method (Switch Position)
1	VR901	Best contrast

**NOTE:**

LCD contrast adjustment can made by controlling the voltage with the DC V meter (3) .However, as the voltage varies with temperature, rough adjustment should be made with referring to typical voltages shown in the table below, and finally the contrast should be adjusted to optimum by visual sense.

**Contrast Adjustment Voltage (Example)**

Temperature(°C)	DC V Meter(3)
0	-11.79V
10	-11.49V
25	-11.36V

## 5. ERROR NUMBERS AND NEW TEST MODE

### ●Indicating An Error Number

If the CD should fail to operate in CD multi player or if an error has taken place during the operation and resulted in an error, the player will enter into the error mode. And the cause of such error is numerically indicated.

This is aimed at assisting an analysis or repair.

#### (1) Basic Means of Display

- With ERROR indicated in "MODE" on IP-BUS Display date, an error code is transmitted by the use of MIN and SEC. Identical date are transmitted with MIN and SEC.
- Examples of Head Unit Display ERROR XX

#### (2) Number of Error Codes

100 codes, ranging from 00 through 99.

#### (3) Error Codes

Error Code	Classification	Description	Cause/Detail
10	ELECTRIC	Carriage home failure	Unmovable to and from the inner circumference →Home switch failed and/or carriage improperly moved
11	ELECTRIC	Focus failure	Focus failed →Disk scarred or stained on the back or vibrating hard
12	ELECTRIC	SETUP failure	Spindle failed to lock or subcode extraordinary →Spindle defective, disk other than audio and ROM
14	ELECTRIC	Blank Disk	Unrecorded CD-R The disc has been inserted upside down
30	ELECTRIC	Search time out	Target address failed to reach →Carriage/tracking improperly and/or disk scarred
A0	SYSTEM/ MECHANISM	Power failure	Power overvoltage or short circuit detected →Switching transistor defective and/or power abnormal
50	MECHANISM	An error upon ejection	MAG SW release time has time out Elevation time out when eject
60	MECHANISM	An error while putting in and out the tray	Tray in/out time has time out Tray is caught when put in
70	MECHANISM	An error upon elevation	Elevation time has time out
80	MECHANISM	An error with an empty magazine inserted	No disk is available

### ●New Test Mode(aging operation and setup analysis)

The CD multi player plays in normal mode. After being set up, it will display FOK (focus), LOCK (spindle), subcode, sound skip, protection against a mechanical error or the like, occurrence of an error, cause and time of an expiry, if any, (and disk number) during the setup, the CD software operation status (internal RAM and C-point) is displayed.

#### (1) How to Put in the NEW TEST Mode

See the test mode flow chart Page 1-14.

## (2) Relations of keys between TEST and NEW TEST Modes

IP-BUS Commands	Keys	Test Mode		New Test Mode	
		Regulator OFF	Regulator ON	PLAY in progress	Error, Protection
15 00	CHANGE/ ESCAPE	Regulator ON	Regulator OFF	CHANGE/ ESCAPE	Cause of error selected
15 01	TRACK UP	—	FWD-KICK	TRACK UP/FF	—
15 02	TRACK DOWN	—	REV-KICK	TRACK DOWN /REV	—
15 03	F·3	—	TRACKING CLOSE	—	—
15 04	F·2	—	TRACKING OPEN	REPEAT MODE	—
15 05	F·6	—	FOCUS CLOSE	—	—
15 06	F·4 —	—	FOCUS OPEN	RANDOM	—
15 07	F·5 —	—	JUMP OFF	—	—
15 08	F·1	To New Test Mode	Jump-Mode Selected	AUTO/MANU	—

Operations, such as EJECT, CD ON/OFF, etc. are to be performed normally

## (3) Error Cause (Error Number) Code

Error Code	Classification	Mode	Description	Cause/Detail
40	ELECTRIC	PLAY	FOK=L 100ms	Put out of focus
41	ELECTRIC	PLAY	LOCK=L 150ms	Spindle unlock
42	ELECTRIC	PLAY	Subcode unacceptable 500ms	Subcode fails to read
43	ELECTRIC	PLAY	Sound skipped	Last address memory operated

Scar,  
Stain,  
Vibration,  
Servo defect,  
etc...

\*With CD single, no mechanical error is displayed while aging. The error code is identical with those in normal mode.

## (4) Indicating an Operation Status During Setup

Status No.	Description	Protection operation
01	Carriage home mode started	None
02	Carriage moving on the internal circumference	10-second time out
03	Carriage moving on the external circumference	10-second time out
11	Setup started	None
12	Spindle turn/Focus search started	None
13	Waiting for focus closing	Failure to focus closing
14	Spindle kicked and focus checked	Out of focus
15	Tracking closed and focus checked	Out of focus
17	Carriage closed and focus checked	Out of focus
18	Lock waiting Subcode waiting	Failure to lock, subcode failed to read Out of focus
19	End	None



## (5) Example of LCD Display.

## (a) SET UP in progress

TRACK MIN SEC

11 11 11

While in the TEST MODE, a status number is indicated in TNO, MIN and SEC.

TRACK

11

MIN SEC

11 11

## (b) Operation (PLAY, SEARCH, etc.) in progress perfectly identical with that in the multi mode.

## (c) Protection/Error upon occurrence

ERROR-XX

While in the error mode, an error number is displayed in MIN and SEC.

Select the display with the CHANGE/ESCAPE key.

TRACK MIN SEC

10 40 05

While in the PLAY MODE, an absolute time is indicated in TNO, MIN and SEC.

TRACK

10

MIN SEC

40 05

Select the display with the F-1 key. (When function is on.)

## 6. EXPLODED VIEW PARTS LIST

### ● Chassis(2)(Exploded View:Page 2-3)

#### NOTES:

- Parts marked by "\*" are generally unavailable because they are not in our Master Spare Parts List.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

### ● Parts List(RS-D2/EW)

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Screw	BMZ26P040FMC		41	Plug(CN851)	CKS1044
	2	Screw	BMZ30P040FMC		42	Plug(CN852)	CKS1045
	3	Screw	CMZ40P060FMC		43	Plug(CN953)	CKS1222
	4	Case	CNB1737		44	Connector(CN756,758)	CKS1524
	5	Holder	CNC3348		45	IC(IC903)	BX-1393
	6	Holder	CNC3349		46	Connector(CN751)	CKS1534
*	7	Earth Plate	CNC4147		47	Connector(CN704)	CKS1940
	8	Holder	CNC4954		48	Connector(CN701)	CKS2600
	9	Holder	CNC5072		49	Connector(CN702)	CKS2681
	10	Insulator	CNM3733		50	Case	CNB1414
	11	Insulator	CNM3903		51	Case	CNB1658
	12	Spacer	CNM3995		52	Holder	CNC3068
	13	Panel	CNS2668	*	53	Bracket	CNC3269
	14	Holder	CNV3692		54	Holder	CNC3849
	15	Control Unit(System)	CWX1611		55	Holder	CNC4952
	16	Connector Unit	CXA4720		56	Holder	CNC5057
	17	Case Assy	CXA5771		57	Shield	CNC5082
	18	Chassis Unit	CXA6270		58	Spacer	CNM1642
	19	CD Mechanism Module	CXK2542		59	Insulator	CNM2891
	20	Screw	PMB30P060FMC		60	Insulator	CNM3828
	21	Screw	PMS20P060FMC		61	FM/AM Unit	CWE1321
	22	Screw	PMS30P040FZK		62	Connector(CN703)	HKS-193
	23	Spring	CBH-865		63	Detach Grille Assy	CXA5718
	24	Screw	CBA1002		64	Panel Assy	CXA5726
*	25	Holder	CNC3343		65	Plug(CN1)	CKS1619
	26	Bush	CNV1009		66	Plug(CN2)	CKS1621
	27	Screw	CBA1014		67	Antenna Jack(ANT1.2)	CKX1010
	28	Cord	CDE4107		68	Lamp(IL751,907)	CEL1150
	29	Cord	CDE4108		69	Holder	CNC3506
	30	Cord Assy	CDE4109		70	FM Front End	CWB1070
	31	Connector Cord	CDE4110		71	Connector(CN755)	CKS2149
	32	Cord	CDE4111		72	Screw	BPZ20P060FMC
	33	Antenna Cable	CDH1188		73	Screw	BPZ20P060FZK
	34	Antenna Cable	CDH1189		74	Button	CAC3541
	35	Clamper	CEF1005		75	Button	CAC3542
	36	Terminal(CN757,955,956,957)	CKF-047		76	Button	CAC3543
	37	Plug(CN952)	CKS-784		77	Spring	CBH1511
	38	Plug(CN754)	CKS-786		78	Seal	CNM3645
	39	Plug(CN954)	CKS-788		79	Cushion	CNM3674
	40	Plug(CN753)	CKS1040		80	Cushion	CNM3901

Mark	No.	Description	Part No.
	81	Lens	CNV3428
	82	Display Unit	CWM3642
	83	.....	
	84	Cover Unit	CXA5413
	85	Grille Unit	CXA5752
	86	Screw	BPZ20P060FMC
	87	Screw	CBA1082
	88	Screw	CBA1154
	89	Screw	CBA1254
	90	Washer	CBF1039
	91	Spring	CBH1516
	92	Socket	CKS2497
	93	Roller	CLA2041
	94	Arm	CNC4730
	95	Arm	CNC4731
	96	Holder	CNC5058
	97	Cushion	CNM2247
	98	Spacer	CNM4053
	99	Spacer	CNM3906
	100	P.C.Board	CNP3477
	101	P.C.Board	CNP3539
	102	Holder	CNV3445
	103	Holder	CNV3446
	104	Rubber	CNV3545
	105	Drive Assy	CXA5376
	106	Holder Unit	CXA5426
	107	Holder Unit	CXA5428
	108	Panel Unit	CXA6533
	109	Reflector	ON2153
*	110	Spacer	CHW1154
	111	Transistor(Q955,978)	2SD2396
	112	IC(IC956)	TA8214K
	113	Connector(CN902,903)	CKS2415
	114	Screw	BMZ26P040FMC
	115	Screw	BMZ30P040FMC
	116	.....	
	117	.....	
118-122	.....		
	123	LCD	CAW1190
	124	EL	CEL1323

Mark	No.	Description	Part No.
	125	Plug(CN901)	CKS2496
	126	Holder	CNC5446
	127	Spacer	CNM3588
	128	Plate	CNM3589
	129	Spacer	CNM3591
	130	Spacer	CNM3617
	131	Spacer	CNM3618
	132	Spacer	CNM3619
	133	Spacer	CNM3675
	134	Sheet	CNM3854
*	135	P.C.Board	CNP3345
	136	Bush	CNV-724
	137	Housing	CNV3429
	138	LCD	CAW1189
	139	P.C.Board	CNP3710
	140	P.C.Board	CNP3711
	141	Screw	CBA1062
	142	Screw	CBA1255
	143	Washer	CBF1039
	144	Spring	CBH1512
	145	Spring	CBH1513
	146	Connector	CDE3938
	147	Spacer	CNM3780
	148	P.C.Board	CNP3311
	149	Gear	CNV2389
	150	Gear	CNV3442
	151	Gear	CNV3443
	152	Spacer	CNV3444
	153	Switch(S751,752)	CSN1022
	154	Holder Assy	CXA5420
	155	Gear Unit	CXA5423
	156	Arm Unit	CXA5424
	157	Motor(M751)	CXM1085

- The RS-D2/UC and RS-D2/ES Parts Lists enumerate the parts which differ from those enumerated in the RS-D2/EW Parts List only.

The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The RS-D2/EW Parts List is given on page 1-31.

Mark No.	Description	RS-D2/EW	RS-D2/UC	RS-D2/ES
		Part No	Part No	Part No
4	Case	CNB1737	CNB1751	CNB1737
15	Control Unit(System)	CWX1611	CWX1612	CWX1614
18	Chassis Unit	CXA6270	CXA6271	CXA6271
61	FM/AM Unit	CWE1321	CWE1323	CWE1320
63	Detach Grille Assy	CXA5718	CXA5719	CXA5718
66	Plug(CN2)	CKS1621	CKS1620	CKS1620
85	Grille Unit	CXA5752	CXA5768	CXA5752
117	Logic Unit	.....	CWX1743	CWX1743

●Chassis(1)(Exploded View:Page 2-2)

● Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord(EW,ES)	CDE3945	15	Plug(CN1001)	CKS-461
	Cord(UC)	CDE3933	16	Plug(CN1005)	CKS-784
2	Cap	CNS1472	17	Plug(CN1004)	CKS-790
3	Resistor	RS1/2P102JL	18	Shield Plate	CNC3377
4	Screw	BMZ30P050FZK	19	Shield Case	CNC3398
5	Connector Assy	CDE4044	20	Holder	CNC4876
6	Chassis	CNA1531	21	Inverter(INV100)	CTX1040
7	Case	CNB1731	22	Transistor(Q1003)	2SD1189
8	Shield	CNC4864	23	Antenna Unit	CXA5526
9	Shield	CNC4865	24	Element Assy	CZX4532
* 10	Insulator	CNM3843	25	Base Assy	CZX4533
11	Seal	CNM3844	26	Feeder Assy	CZX4534
12	Power Supply Unit	CWR1045			
13	Screw	PPZ26P050FMC			
14	Screw	BMZ30P060FMC			

●Free Space Assy(Exploded View:Page 2-5)

● Parts List(RS-D2/EW)

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Button(DETACH)	CAC3482	36	Switch(S25:DOOR)	CSN-078
2	Button	CAC3691	37	Remote Control Assy	CWM3651
3	Button(CD PAUSE)	CAC3484	38	Base Assy	CXA5569
4	Button(MENU)	CAC3485	39	Door Unit	CXA5754
5	Button	CAC3879	40	Grille Unit	CXA5756
6	Button(CHANGE/ESCAPE)	CAC3487	41	Screw	BNC40P100FZK
7	Button	CAC3488	42	Cord	CDE4037
8	Button(VOL-)	CAC3489	43	Plug(CN5)	CKS2572
9	Button(ATT)	CAC3490	44	Plug(CN4)	CKS2573
10	Button(VOL+)	CAC3661	45	P.C.Board	CNP3307
11	Screw	CBA1253	46	Connector(CN1)	CKS2191
12	Screw	CBA1263	47	Connector(CN7)	CKS2192
13	Screw	BPZ20P100FZK	48	Connector(CN6)	CKS2196
14	Screw	CBA1183	49	Screw	BMZ30P060FMC
15	Screw	BPZ20P060FMC	50	Screw	CBA1262
16	Screw	BPZ20P080FMC	51	Screw	BPZ26P100FZK
17	Cord	CDE3990	52	Screw	PPZ20P060FMC
18	Holder	CNC4792	53	Screw	BPZ20P080FMC
19	Holder	CNC4793	54	Spring	CBH1524
20	Holder	CNC4794	55	Cord	CDE3946
21	Bracket	CNC4913	56	Holder	CNC4682
22	Cushion	CNM3892	57	Base	CNS2633
23	Sheet	CNM3718	58	Base	CNS2634
24	Spacer	CNM3760	59	Base	CNS2674
25	Spacer	CNM3818	60	Cover	CNS2675
26	Film	CNM3819	61	Spring Unit	CXA5353
27	Film	CNM3820	62	Switch(S2:BATTERY)	CSH1032
28	Lower Case	CNS2630	63	Free Space Assy	CPX1020
29	Battery Cover	CNS2631	64	Spare Base Assy	CXX1119
30	Plate	CNS2632			
31	Base	CNS2676			
32	Guide	CNV3393			
33	Guide	CNV3394			
34	Lens	CNV3395			
35	Lens	CNV3396			

●The RS-D2/UC and RS-D2/ES Parts Lists enumerate the parts which differ from those enumerated in the RS-D2/EW Parts List only.

The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly.

Mark No.	Description	RS-D2/UC Part No.	RS-D2/EW Part No.	RS-D2/ES Part No.
37	Remote Control Assy	CWM3651	CWM3652	CWM3652
39	Door Unit	CXA5754	CXA5954	CXA5754
40	Grille Unit	CXA5756	CXA6044	CXA6045

●CD Mechanism Module(Exploded View:Page 2-7)

● Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Damper	CNV2882		46	Gear Unit	CXA4265
	2	Holder	CNV2863		47	Connector(4P)	CKS2088
	3	Screw	CBA1004		48	Switch(S1,2)	CSN1012
	4	Spring	CBH1417		49	Screw	CBA1077
	5	Frame	CNC3816		50	LED(D1-4)	GL4800
	6	Guide	CNV2891		51	Gathering P.C.Board	CNX1983
	7	Frame	CNC4783		52	Connector(16P)	CKS2064
	8	Screw	BMZ20P030FMC		53	Washer	YE20FUC
	9	Bracket	CNC4687		54	Arm	CNV2884
	10	Screw	BMZ20P040FNI		55	Lever Unit	CXA5093
	11	Frame	CNC4686		56	Arm	CNV2885
	12	Screw	JFZ20P018FNI		57	Motor(Spindle)	CXM1058
	13	Spring	CBL1131	*	58	Support Wheel	CNV2859
	14	Bracket	CNC3830		59	Screw	HBA-258
	15	Clamper	CNV2864		60	.....	
	16	Arm Unit	CXA5090		61	Spring	CBH1414
	17	Spring	CBH1415		62	Spring	CBH1424
	18	Washer	CBF1039		63	Connector	CDE3369
	19	Spring	CBH1418		64	Spring	CBH1410
	20	Spring	CBH1419		65	Spring	CBL1129
	21	Arm Unit	CXA5091		66	Screw	JFZ20P025FMC
	22	Arm	CNV2876		67	Belt	CNT1047
	23	Washer	CBF1038		68	Bracket	CNC3832
	24	Sheet	CNM3582		69	Holder	CNV2878
	25	Gear	CNV2875		70	Spring	CBH1413
	26	Spring	CBH1423		71	Cover	CNV2889
	27	Arm Unit	CXA5383		72	Holder	CNV3023
	28	Photo-transistor(P1-4)	PT4800		73	Chassis Unit	CXA4258
	29	Spring	CBH1449		74	Lever	CNV2874
	30	P.C.Board	CNP3125		75	Lever	CNC3824
	31	Spring	CBH1420		76	Gear	CNV2871
	32	Lever	CNC3828		77	Arm	CNC3833
	33	Roller	CLA1936		78	Gear	CNV2872
	34	Screw	JFZ20P018FNI		79	Gear	CNV2883
	35	Spring	CBL1130		80	Gear	CNV2873
	36	Arm Unit	CXA6176		81	Gear	CNV2870
	37	Sheet	CNM3873		82	Gear	CNV2869
	38	Holder	CNV3276		83	Bracket Unit	CXA4261
	39	Washer	HBF-132		84	Shaft	CLA2027
	40	Spring	CBH1412		85	Motor Unit(Carriage)	CXA4649
	41	Roller	CNV2225		86	Holder	CNV2888
	42	Short Pin	CBL1010		87	Screw Unit	CXA5384
	43	Washer	YE15FUC		88	Screw	CBA1082
	44	Arm	CNC3819		89	Washer	CBF1054
	45	Spring	CBH1421		90	Gear	CNV2892

Mark	No.	Description	Part No.
	91	Gear	CNV2868
	92	Bracket Unit	CXA5078
	93	.....	
	94	Screw	PMS26P040FMC
	95	Rack	CNV3268
	96	Spring	CBH1508
	97	Bracket	CNC4436
	98	Screw	JFZ17P035FNI
	99	Holder Unit	CXA5246
	100	PU Unit	CGY1020
	101	.....	
	102	Spring	CBH1422
	103	Holder	CNC4306
	104	Screw	JGZ20P070FNI
	105	.....	

Mark	No.	Description	Part No.
	106	Motor Unit>Loading)	CXA4267
*	107	Connector	CKS2063
	108	Connector	CKS2149
*	109	Connector	CKS2121
	110	Control Unit	CWX1678
	111	Weight	CNC5112
	112	Spring	CBH1458
	113	Spring	CBH1457
	114	Spacer	CNM3315
	115	CD Mechanism Unit	CXA5619
	116-118	.....	
	119	Screw	CBA1230
	120	.....	
	121	Screw	PMS20P025FMC

## 7. ELECTRICAL PARTS LIST

### NOTES:

● Parts whose parts numbers are omitted are subject to being not supplied.

● The part numbers shown below indicate chip components.

Chip Resistor

RS1/○○S○○○J, RS1/○○S○○○J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

### ● Parts List(RS-D2/EW)

====Circuit Symbol & No. Part Name=====

Part No.

====Circuit Symbol & No. Part Name=====

Part No.

Unit Number : CWE1321  
Unit Name : FM/AM Unit

#### MISCELLANEOUS

IC 1		KHA273B
IC 51		PA4019A
IC 201		PAF001A
Q 1 5		DTC124EU
Q 2 10 51 131 132		DTC124EU
Q 3 71 123		2SC4116
Q 11		DTC124EU
Q 41		2SB709A
Q 52		2SC4116
Q 126		2SC4116
Q 201		FC12(12G)
Q 202		2SC4116
Q 203		DTC124EU
Q 231		DTC124EU
D 201 204		MA157-MR
D 205		SVC203CP
L 1	Inductor	LCTA150K3225
L 2	Inductor	LCTBR12K2125
L 41	Inductor	LCTB1R0K2125
L 42	Inductor	LCTBR15K2125
L 51	Inductor	LCTA150K3225
L 52	Inductor	LCTA220K3225
L 71	Inductor	LCTB3R9K2125
L 101	Inductor	LCTA102K4532
L 201	Coil	CTB1086
L 202	Coil	CTB1082
L 203	Inductor	LCTB390K2125
L 204	Inductor	LCTB680K2125
L 205	Inductor	CTF1198
L 206	Inductor	CTF1197
T 51	Coil	CTE1067
T 52	Coil	CTE1068
T 71	Coil	CTE1058
T 203	Coil	CTB1087
T 204	Coil	CTE1064
T 205	Coil	CTE1060
T 206	Coil	CTE1061
TH 51	Thermister	DTN-T203T333K
TH 102	Thermister	CCX1015
CF 52 53	Ceramic Filter	CTF1193
CF 201	Ceramic Filter	CTF1262
CF 202	Ceramic Filter	CTF1191
X 151	Ceramic Resonator 456kHz	CSS1075
X 201	Crystal Resonator 10.26MHz	CSS1094
VR 1	Semi-fixed 22kΩ (B)	CCP1183
VR 51 101 102	Semi-fixed 33kΩ (B)	CCP1184
AR 1		DSP-141N
AR 2		DSP-141N
FE 1	FM Front End	CWB1070

#### RESISTORS

R 1		RS1/16S562J
R 4		RS1/16S102J
R 5		RS1/16S472J
R 6		RS1/16S392J
R 7 8		RS1/16S0R0J
R 10		RS1/16S472J
R 41		RS1/16S683J
R 42		RS1/16S154J
R 54		RS1/10S562J
R 56		RS1/16S333J
R 57		RS1/16S153J
R 58		RS1/16S273J
R 59 74		RS1/16S331J
R 60		RS1/16S473J
R 66		RS1/16S153J
R 72		RS1/16S123J
R 73		RS1/16S103J
R 75		RS1/16S102J
R 76		RS1/16S221J
R 100		RS1/16S153J
R 101		RS1/10S331J
R 102 111		RS1/16S183J
R 104		RS1/16S102J
R 105		RS1/16S333J
R 106		RS1/16S684J
R 108		RS1/16S333J
R 121 149		RS1/16S104J
R 122		RS1/16S124J
R 123		RS1/16S273J
R 127		RS1/16S103J
R 128		RS1/16S103J
R 129		RS1/16S184J
R 132		RS1/16S0R0J
R 137		RS1/16S223J
R 142		RS1/16S473J
R 143		RS1/16S393J
R 148		RS1/10S222J
R 151 152		RS1/16S332J
R 153 203		RS1/16S222J
R 201		RS1/16S220J
R 202		RS1/10S681J
R 204		RS1/16S473J
R 205 209		RS1/16S470J
R 207		RS1/10S822J
R 211 212 236 237 238		RS1/16S103J
R 214		RS1/16S182J
R 231		RS1/16S823J
R 232		RS1/10S102J
R 233		RS1/16S222J
R 235		RS1/16S104J



====Circuit Symbol &amp; No. Part Name=====

Part No.

R 239	RS1/16S392J
R 240	RS1/16S473J
R 241 242	RS1/16S103J
R 243	RS1/16S152J
R 244	RS1/16S242J
R 249	RS1/16S225J
CAPACITORS	
C 1 111 125	CEV100M16
C 2 51 59	CKSRYP473Z25
C 5	CKSQYB472K50
C 41 43	CSZSR100M10
C 42	CKSRYP103K25
C 44	CSZSC220M10
C 45	CCSRCH220J50
C 52 53 61	CKSRYP223K25
C 54	CCSQCH101J50
C 56	CKSRYP104Z25
C 57	CSZSR33M25
C 58	CCSRCH070D50
C 60	CEVNP100M10
C 62	CCSRPH820J50
C 63	CCSRPH470J50
C 72 73 80 104	CKSRYP103K50
C 74 129 158	CKSRYP473Z25
C 101 102	CKSRYP682K50
C 103	CKSQYB392K50
C 105 211 235	CEVR47M50
C 106	CKSQYB104K25
C 107 108	CKSRYP222K50
C 110	CKSYB224K25
C 112	CKSYB183K50
C 122	CKSYB104K50
C 123	CKSYB103K50
C 124	CSZS3R3M10
C 127	CEV4R7M35
C 128	CKSRYP223K25
C 131	CCSRCH820J50
C 132 153	CSZSR47M20
C 151 152	CKSQYB183K25
C 154 155 156	CEV3R3M50
C 157	CEV101M10
C 201 216 241	CKSRYP103K50
C 202 212	CKSRYP332K50
C 203	CSZS3R3M10
C 204	CKSQYB223K25
C 205	CCSRCH120J50
C 206	CCSRCH560J50
C 207	CCSRCH680J50
C 208	CKSRYP223K25
C 210	CKSQYB103K50
C 213	CCSQCH330J50
C 215	CKSRYP473Z25
C 220	CCSRCH430J50
C 221	CCSRCH120J50
C 224 229	CEV470M16
C 225	CKSQYB333K25
C 226	CKSQYB473K25
C 231	CCSRCH100D50
C 232 234 244	CKSRYP103K50
C 233	CKSRYP473Z25
C 236	CKSYB104K50
C 237	CEV4R7M35
C 238	CEV3R3M50
C 239	CKSRYP223K25
C 242	CCSRCH030C50

====Circuit Symbol &amp; No. Part Name=====

Part No.

Key Board Unit	
Consists of	
●Control P.C.Board	
●Driver P.C.Board	

Unit Number :

Unit Name : Key Board Unit

## MISCELLANEOUS

IC 1 2 3 4	HD81202TF
IC 5	HD81203TF
IC 901	PD3254A
IC 902	PD3266A
IC 904	S-80743AN-D7
IC 907	TC4S81F
IC 908	TC7S00F
IC 909	RC5532MD
Q 902	DTC144EU
D 901 902 903 904 905 906 907 908 909 910	HSM123
D 911 912 913 914 915 916 917 918 919 920	HSM123
D 921 922 923 924 925 926 927 928	HSM123
L 901	LCTA4R7K4532
L 902	LCTA150K4532
L 903	LCTB1R0K2125
TH 901	CCX1011
X 901	CSS1107
S 901 902 903	CSG1043
S 904 905	CSG1043
VR 901	CCP1011
	LCD(Display Cell)
	CAW1189

## RESISTORS

R 1 2 3 4 5 11 945	RS1/16S103J
R 6 7 8 9	RS1/2S222J
R 10	RS1/10S473J
R 12	RS1/16S104J
R 13 14 15 16 17 18 19 20 22	RS1/16S102J
R 21 23 24 25 26 27 28 29 30 31	RS1/16S511J
R 32 33 34 35 36 37 38 39 40 41	RS1/16S511J
R 42	RN1/10SE823D
R 43	RN1/10SE393D
R 44	RN1/10SE203D
R 45	RN1/10SE103D
R 46 48 49 50 51 52 53 54 55 56	RS1/16S511J
R 47	RS1/10S103J
R 57 58 59 60 61 62 63 64 65 66	RS1/16S511J
R 67 68 69 70 71 72 73 79 901 902	RS1/16S511J
R 74 75 76 77 78 942	RS1/16S0R0J
R 903 904 905 906 907 908 909 910 911 912	RS1/16S511J
R 914 915 916 917 918	RS1/16S511J
R 919	RS1/10S121J
R 920	RS1/10S2R2J
R 921	RN1/10SE512D
R 922	RN1/10SE303D
R 923	RN1/10SE163D
R 924	RN1/10SE472D
R 926	RN1/10SE682D
R 927 928 930 931	RN1/10SE301D
R 929	RN1/10SE152D
R 932 933 934 935 936 937	RS1/16S150J
R 938	RS1/10S333J
R 939 940	RS1/10S224J

## CAPACITORS

C 1 3 7 9 10 11 13	CKSQYB473K50
C 2 907	CSZST470M6R3
C 4	CSZST150M20
C 5	CKSQYB103K25
C 6	CCSRCH151J50

====Circuit Symbol & No. Part Name=====	Part No.
C 901	CCSQCH200J50
C 902 903 904 905 906	CKSQYB104K25
C 910 911 912 913 920 921 922 923 924 925	CKSQYF104Z25
C 926	CKSQYF104Z25

Unit Number : CWM3642  
Unit Name : Display Unit

IC 903	BX-1393
IL 907	CEL1150
	CAW1190
	CEL1323
	Lamp 14V 40mA
	LCD(Interference Cell)
	EL

#### Remote Control Assy(CWM3651)

Consists of  
●Main P.C.Board  
●Switch P.C.Board(A)  
●Switch P.C.Board(B)  
●Connector P.C.Board

Unit Number : CWM3651  
Unit Name : Remote Control Assy

#### MISCELLANEOUS

IC 1	PD4448A
IC 2	S-80722AN-DK
Q 1 3	2SC4081
Q 2	2SD1664
Q 4	2SA1576
Q 5	2SC3295
D 1	SE303ARF
D 2	SIR-33ST
D 3 4 6	MA110-1A
D 5	HSM123
X 1	Ceramic Resonator 4.00MHz
S 1	Switch(Detach Sense)
S 2	Switch(Battery)
S 3 4 5	Switch
S 6 7 8	Switch
S 9 10 11	Switch
S 12 13 14	Switch
S 15 16 18	Switch
S 19 20 22	Switch
S 21 23 24	Switch
IL 1	Lamp 14V 40mA
IL 2 3	Lamp 14V 40mA

#### RESISTORS

R 1	RS1/10S474J
R 2	RS1/8S222J
R 3	RS1/10S820J
R 4	RS1/10S123J
R 5	RS1/8S2R2J
R 6	RS1/8S5R6J
R 7	RS1/10S103J
R 8	RS1/10S222J
R 9	RS1/10S472J
R 10	RS1/10S223J
R 11	RS1/10S102J
R 12 13	RS1/10S104J

#### CAPACITORS

C 1	CSZS4R7M6R3
C 2 3	CKSQYB104K16

====Circuit Symbol & No. Part Name=====	Part No.
Unit Number : CWR1045	
Unit Name : Power Supply Unit	

#### MISCELLANEOUS

IC 100	TL1451ANS
Q 100 150	2SA1797
Q 101 151	2SC2812
Q 102 152	2SA1179
Q 103	2SA1179
Q 104 107 155	2SC2812
Q 105 153	2SC2812
Q 106 154	2SA1179
Q 1001	2SA1162
Q 1002	2SC2712
Q 1003	2SD1189
Q 1004	2SC2712
Q 1005	2SB1238
Q 1006	2SC2712
Q 1008	2SC2712
D 100 150	SC802-06
D 101 151 1006	MA110-1A
D 1001 1002	ERA15-02
D 1003	MA3082M
D 1004	MA3047H
L 100 101 102 150 151 152	CTH1124
L 1001	CTH1076
EF1001 1002 1003	CCG1006
INV100	CTX1040

#### RESISTORS

R 100 150	RS1/10S122J
R 101 151	RS1/10S473J
R 102 152	RS1/4S681J
R 103 153	RS1/10S101J
R 104 154	RN1/10SE303D
R 105 161	RN1/10SE222D
R 106 156	RS1/10S104J
R 107 108 157 158	RN1/10SE103D
R 109	RS1/10S474J
R 110	RN1/10SE912D
R 111	RN1/10SE153D
R 112	RN1/10SE273D
R 113	RS1/10S101J
R 114 1001 1014	RS1/10S473J
R 115	RS1/10S223J
R 116 155	RN1/10SE362D
R 117	RS1/10S563J
R 118	RS1/10S563J
R 119 122 124 162 165	RS1/10S473J
R 120 121 123 163 164	RS1/10S223J
R 159	RS1/10S223J
R 160	RS1/10S222J
R 1002	RS1/10S472J
R 1003	RS1/4S681J
R 1004	RS2P100JL
R 1005 1010	RS1/8S473J
R 1006	RS1/8S222J
R 1009	RS1/10S103J
R 1011	RS1/8S473J
R 1015 1016	RS1/10S103J
R 1017 1018	RS1/10S103J

#### CAPACITORS

C 100 102 105 107 39 $\mu$ F/25V	CCH1162
C 101 104 108 109 113 151 154 158	CKSQYB102K50
C 103 153	CCSQCH101J50
C 110	CEHAS010M50
C 111	CCSQCH221J50

## ====Circuit Symbol &amp; No. Part Name=====

## Part No.

C 112  
C 114  
C 150 152 155 157 39  $\mu$  F/25V  
C 1001 3300  $\mu$  F/16V  
C 1002 1010

C 1003 1013 1015  
C 1004 1005  
C 1006  
C 1007 1009 1011  
C 1012

C 1014  
C 1016 1017 1018  
C 1019

## Control Unit(System)(CWX1611)

Consists of

- Mother P.C.Board
- OPT Out P.C.Board

Unit Number : CWX1611

Unit Name : Control Unit(System)

## MISCELLANEOUS

IC 451 452  
IC 453 454  
IC 501  
IC 502  
IC 601

IC 602  
IC 603  
IC 604  
IC 701  
IC 702

IC 703 708  
IC 704  
IC 705  
IC 706  
IC 707

IC 751  
IC 752  
IC 753  
IC 754  
IC 851

IC 852 951  
IC 854  
IC 953  
IC 954  
IC 955

IC 956  
IC 957  
Q 453  
Q 454  
Q 455

Q 456 774  
Q 501  
Q 502  
Q 503 505 508 509 510 516 601 763  
Q 504 506

Q 507  
Q 519 757 775  
Q 602 705 751 753 754 755 951 952  
Q 604 771  
Q 605

Q 704 761  
Q 752 760 765 767 965  
Q 756  
Q 759 967  
Q 762

CKSQYB104K25  
CKSQYB222J50  
CCH1162  
CCH1037  
CKSYB473K16

CKSYB473K16  
CKSQYB103K50  
CEAS221M10  
CEA101M16LL  
CEA470M25LL

CEA470M16LL  
CKCYF473Z50  
CEA3R3M50LL

BA3129F  
NJM4558M  
LC72140M  
CWV1044  
PD4477B

MSM82C55A-2GS  
LH5118HN-10T  
TC74HC373AF  
AK5369-VK  
M51581FP

TC7WU04F  
TC74HC10AF  
NJM3404AM  
TC7S04F  
TC7S00F

TK11235  
S-80732AN-DW  
TC7S04F  
XRA6288FS  
TA2050S

PML001A  
PA0051AM  
NJM78L05A  
NJM78L05UA  
NJM78L05UA

TA8214K  
M62009FP  
DTC143TK  
DTC143TK  
DTC114TK

DTA114EK  
2SC3098  
DTC144EK  
2SC2712  
2SK208

DTC124EK  
DTC144EK  
2SC2712  
DTC114TK  
DTC114EK

2SC1621  
2SB1238  
DTA144EK  
DTC144EK  
2SC3295

## ====Circuit Symbol &amp; No. Part Name=====

## Part No.

Q 764  
Q 766 856 958 976  
Q 768  
Q 769  
Q 770 977

Q 772  
Q 773  
Q 851  
Q 854  
Q 954

Q 955 978  
Q 957 984  
Q 959  
Q 960  
Q 963

Q 979  
D 452  
D 453 454 601 602 702 762 857 955  
D 501 502  
D 503

D 504 505 506 971  
D 603  
D 751 753  
D 754 755 756  
D 757 759

D 758 760  
D 761  
D 763  
D 764  
D 765

D 852 853 956 957  
D 854  
D 855  
D 856  
D 858 859

D 952  
D 953  
D 958 964 965  
D 959  
D 960

D 961  
D 962  
D 972  
D 973  
ZNR751 752

ZNR753 754 755  
L 501  
L 502  
L 503 504 708  
L 601 701 702

L 751 752  
L 603  
L 604  
L 703 705  
L 704

L 706 707  
L 709  
L 710 711  
L 754 757  
L 851 852

L 953  
TC 601  
X 501  
X 601  
X 701

Surge Absorber

Surge Absorber  
Inductor  
Inductor  
Inductor  
Inductor

Inductor  
Inductor  
Ferri-Inductor  
Inductor  
Inductor

Inductor  
Inductor  
Ferri-Inductor  
Inductor  
Inductor

Inductor  
Trimmer  
Crystal Resonator 7.2MHz  
Crystal Resonator 6.29145MHz  
Crystal Resonator 11.2896MHz

2SA1162  
DTC114EK  
2SC3295  
2SC3295  
DTA114EK

2SD1189  
DTA124EK  
DTA114EK  
2SC3295  
2SA1162

2SD2396  
2SB1132  
2SB1236  
DTC114EK  
2SD1859

DTC144TK  
MA151WA-MN  
MA151WK-MT  
MA3027H  
MA3047M

MA151WK-MT  
RB421D  
HSM123  
HSM123  
MA153-MC

MA153-MC  
MA3068M  
MA151WA-MN  
MA151WA-MN  
MA151WA-MN

ERA15-02  
MA3180M  
MA3180M  
MA110-1A  
MA151K-MH

ERA15-02  
MA3082L  
1SS133  
HZS7LA1  
HZS9LB1

MA3091M  
MA3160  
HZS9LC3  
MA3036H  
ERZ-C07DK220

ERZ-C07DK220  
LCTB1R0K3216  
LCTB2R2K2125  
LCYA2R2M3225  
LCYA100K3225

LCYA100K3225  
LCTB4R7K3216  
LAU2R2K  
LCTB100K2125  
LCTB4R7K3216

LCTB1R0K3216  
LCTB1R0K2125  
LAU2R2M  
LCTA2R2K4532  
LCYA1R0M3225

LCYA2R2M3225  
CCG-070  
CSS1106  
CSS1303  
CSS1088

====Circuit Symbol & No. Part Name=====	Part No.	====Circuit Symbol & No. Part Name=====	Part No.
S 851 Switch	CSH1002	R 736 737 765 772 792 970	RS1/10S103J
S 751 Switch	CSG1054	R 739	RS1/10S104J
IL 751 Lamp 14V 40mA	CEL1150	R 740 798	RS1/10S104J
VR 501 Semi-fixed 4.7kΩ (B)	CCP1152	R 741	RS1/10S513J
FM/AM Unit	CWE1321	R 742	RS1/10S472J
EF 951	CCG1003	R 743	RS1/10S223J
BZ 601	CPV1012	R 744 747 749	RS1/10S104J
RESISTORS		R 745 746	RS1/10S473J
R 451 452	RS1/10S104J	R 748 797	RS1/10S151J
R 453 707	RS1/10S102J	R 751	RS1/8S222J
R 454	RS1/10S102J	R 753 754 755 756	RS1/8S222J
R 455 856	RS1/10S153J	R 757 761 802	RS1/10S473J
R 456	RS1/10S153J	R 760 867 868 960	RS1/10S473J
R 457 458	RS1/10S273J	R 767 773 774 775 780 783 785 791 866 953	RS1/10S473J
R 459 460 461 462 475 506 509 537 552 735	RS1/10S103J	R 768	RS1/10S473J
R 469 470	RS1/10S473J	R 769 770 771	RS1/8S102J
R 474	RS1/10S0R0J	R 777	RS1/10S112J
R 476 524 612 750 963 964	RS1/10S103J	R 779	RS1/10S472J
R 477 481 485 522 523 533 544 553 557	RS1/10S473J	R 781 784 786	RD1/4PS222JL
R 478 530 616 618 622 623 638 762 763 764	RS1/10S473J	R 787	RD1/4PS881JL
R 479 480 766 954 959 961	RS1/10S472J	R 793 795	RS1/10S224J
R 482 486 545 551 554 565 566 711 724	RS1/10S104J	R 796 994	RS1/10S224J
R 483 484	RS1/10S683J	R 801	RS1/10S473J
R 487 993	RS1/10S104J	R 851 852	RS1/10S471J
R 489 527 540 541 542 543 555 614 635 639	RS1/10S102J	R 853 854	RS1/10S223J
R 490 511 513 517 518 519 520 521 529 539	RS1/10S102J	R 855	RS1/10S224J
R 501	RS1/10S331J	R 857	RD1/4PS560JL
R 502	RS1/10S182J	R 862 962	RS1/10S102J
R 503 505	RS1/10S101J	R 872	RS1/10S104J
R 504	RS1/10S821J	R 873	RS1/10S620J
R 507	RS1/10S473J	R 874 875	RS1/10S101J
R 510 532 538 569 859 971 991	RS1/10S472J	R 951	RS1/10S682J
R 512 858	RS1/10S152J	R 952	RS1/10S134J
R 514 515 535 734	RS1/10S222J	R 958	RS1/10S183J
R 525 526 528 534	RS1/10S222J	R 966	RS1/8S100J
R 536	RS1/10S333J	R 967	RS1/10S133J
R 547 752	RS1/10S223J	R 968	RD1/4PS221JL
R 549 570 571	RS1/10S473J	R 969 974	RS1/10S473J
R 550 559 560 561 562 567 602 609 610 730	RS1/10S102J	R 972	RD1/4PS242JL
R 556	RD1/4PS620JL	R 975	RD1/4PS821JL
R 558 806 607 608 620 621 630 636 637 710	RS1/10S473J	R 977	RS1/10S750J
R 563 564	RS1/10S562J	R 981	RS1/10S103J
R 568	RS1/10S0R0J	R 989	RD1/4PS471JL
R 601	RS1/10S202J	R 990	RS1/10S392J
R 603	RS1/10S104J	R 992	RD1/4PS221JL
R 605	RS1/10S683J	R 995	RS1/10S203J
R 611 617 870	RS1/10S104J	R 998	RS1/10S473J
R 613	RS1/10S823J	CAPACITORS	
R 615	RS1/10S104J	C 451 452 527 725 754 762 857 873 989	CEA100M16LL
R 619	RS1/10S473J	C 453 454 455 456 459 460	CCSQCH100D50
R 625 799	RS1/10S221J	C 457 458	CEA100M16NPLL
R 626	RA4C201J	C 463 464	CEA100M16NPLL
R 631	RA4C682J	C 465 603 611 854 855 983	CEA010M50LL
R 640 641	RA4C561J	C 469 601 602 719 872 877 980 987	CKSQYB473K50
R 642	RA3C471J	C 470 471 531 533 616 738 766 956 970	CKSQYB102K50
R 643 644 645 646	RS1/10S561J	C 472	CCSQCH470J50
R 705 976	RS1/10S510J	C 473 503 506	CCSQCH101J50
R 706	RS1/10S510J	C 474	CCDCH470K50
R 709 790	RS1/10S100J	C 501 509 511 524 528 529 709 711 736 741	CKSQYB103K50
R 712 713 714 716 717 718 719 732 758 759	RS1/10S473J	C 502	CCSQCH561J50
R 715	RS1/10S222J	C 504 516 519 730 731	CCSQCH101J50
R 720	RS1/10S105J	C 507 608 609 708 713 720 726 751 866 867	CKSQYB473K50
R 721	RS1/10S112J	C 508	CCH1005
R 722 789 794 978 979 980	RS1/10S102J	C 510	CFTNA474J50
R 723	RS1/10S391J	C 512	CEAR47M50LL
R 725 726 727 728	RS1/10S511J	C 513 514	CCSQCH180J50
R 729	RS1/10S681J	C 515 522 523	CKSQYB223K50
R 731 733 738 776 778 788	RS1/10S102J	C 517 518	CEA4R7M35LL

====Circuit Symbol & No. Part Name=====	Part No.	====Circuit Symbol & No. Part Name=====	Part No.
C 520 521	CKSQYB223K50	D 757	HZM6R8NB2
C 525 526	CEA010M50LL	D 758	MA151A-MA
C 530	CSZSR22M35	L 701	LCTBR39K2125
C 532	CCSQCH101J50	TH 752	CCX1015
C 604	CCSQCH220J50	X 701	CSS1067
C 605	CCSQCH150J50	X 751	Ceramic Resonator 4.9152MHz
C 610 612 613 763 851 852 874 875 957	CKSQYB102K50	VR 351	Semi-fixed 22kΩ (B)
C 615 869 870	CCSQCH470J50	VR 352 355 356	Semi-fixed 47kΩ (B)
C 617	CKSQYB472K50	VR 353 354	Semi-fixed 2.2kΩ (B)
C 703	CCSQCH101J50		Checker Chip
C 704	CCSQCH101J50		
C 705 761	CKSQYB102K50		
C 707	CEA6R8M35LS		
C 710 712	CEA470M6R3LL		
C 714 715 728 953	CKSQYB102K50		
C 716	CSZS0R1M35		
C 717 727	CCSQCH101J50		
C 718	CCSQCH101J50		
C 721 722	CCSQCH150J50		
C 723	CCSQCH150J50		
C 724	CKSQYB104K25		
C 733	CCSQCH221J50		
C 734 735	CKSYB104K50		
C 737	CKSQYB221K50		
C 739 740	CKSQYB222K50		
C 742 756 988 990 992	CKSQYB103K50		
C 755 865	CEA0R1M50LL		
C 757	CCSQCH150J50		
C 758	CKSQYB103K50		
C 759	CKSQYB102K50		
C 764 973 978	CKSQYB103K50		
C 765 853 856 974	CEA220M16LL		
C 868 960 963 977	CKSQYB473K50		
C 951 994 995 996 999	CCSQCH101J50		
C 955	CKSQYB102K50		
C 959	CCL1027		
C 961 966 982	CEA470M16LL		
C 962 975 979	CEA101M10LS		
C 967 969 971	CEA220M10LL		
C 972	CCL1031		
C 976	CKSQYB103K50		
C 981	CCH-114		
C 984	CEHAQ221M10		
C 991	CEA100M16LL		
C 997 998	CCSQCH101J50		
Unit Number : CWX1678			
Unit Name : Control Unit(CD Mechanism Module)			
MISCELLANEOUS			
IC 351	UPC1347GS		
IC 601	UPD6374AGH		
IC 602	XRA4558F		
IC 651	PA3026		
IC 653	XRA4558F		
IC 701	UPD6375GC		
IC 751	PD5256A		
IC 752	MB3854PF		
Q 351	2SB1260		
Q 601	2SB709A		
Q 651	2SB1184F5		
Q 652	2SB1184F5		
Q 654	DTC114EK		
Q 752	DTA114EK		
Q 753	DTA114EK		
Q 754	DTC114EK		
Q 755	2SD1760F5		
Q 756	2SD1030		
D 651	SC016-2		
D 652	SC016-2		
D 757			
D 758			
L 701	Inductor		
TH 752	Thermistor		
X 701	Crystal Resonator 16.9344MHz		
X 751	Ceramic Resonator 4.9152MHz		
VR 351	Semi-fixed 22kΩ (B)		
VR 352 355 356	Semi-fixed 47kΩ (B)		
VR 353 354	Semi-fixed 2.2kΩ (B)		
	Checker Chip		
RESISTORS			
R 351			RS1/8S100J
R 353			RS1/16S623J
R 354 757 779			RS1/16S473J
R 355			RS1/16S122J
R 356			RS1/16S683J
R 357			RS1/16S683J
R 358			RS1/16S332J
R 359			RS1/16S332J
R 360			RS1/16S684J
R 361			RS1/16S153J
R 362			RS1/8S120J
R 369			RS1/16S103J
R 375 377 713			RS1/16S102J
R 379			RS1/16S513J
R 380			RS1/16S104J
R 381			RS1/16S133J
R 382			RS1/16S133J
R 606			RS1/16S224J
R 607 664 753 755			RS1/16S103J
R 609			RS1/16S102J
R 611 612 665			RS1/16S102J
R 613			RS1/16S102J
R 614			RS1/16S472J
R 615			RS1/16S472J
R 616			RS1/16S102J
R 617			RS1/8S0R0J
R 618			RS1/8S103J
R 619 620			RS1/8S102J
R 652			RS1/16S162J
R 654 722			RS1/16S162J
R 655			RS1/16S183J
R 656			RS1/16S362J
R 657			RS1/16S163J
R 663			RS1/10S181J
R 669 797			RS1/16S103J
R 670			RS1/10S151J
R 676			RS1/16S683J
R 679			RS1/16S102J
R 684			RS1/16S102J
R 706			RS1/16S0R0J
R 709 710			RS1/16S0R0J
R 711 712 764			RS1/16S102J
R 721			RS1/16S472J
R 724			RS1/10S1R0J
R 725			RS1/16S472J
R 738 798			RS1/16S0R0J
R 751			RS1/10S1R0J
R 752			RS1/16S183J
R 754 776			RS1/16S472J
R 756 771 772 773			RS1/16S222J
R 758			RS1/16S224J
R 765 793			RS1/16S102J
R 766			RS1/16S473J
R 767 768			RS1/16S334J
R 769 770			RS1/16S104J

## ====Circuit Symbol &amp; No. Part Name=====

## Part No.

R 775  
R 778  
R 780  
R 781 782  
R 783 784 785 786 787

RS1/16S104J  
RS1/16S103J  
RS1/16S104J  
RS1/16S362J  
RS1/16S681J

R 788  
R 791 792  
R 794  
R 799

RS1/16S102J  
RS1/8S751J  
RS1/16S151J  
RS1/10S1R5J

## CAPACITORS

C 351  
C 352  
C 353  
C 354 355  
C 357 359 366

CEV470M16  
CKSQYB104K16  
CEV101M6R3  
CSZSR4R7M10  
CKSRYB102K50

C 358  
C 360  
C 381  
C 601  
C 603

CKSRYB331K50  
CKSRYB271K50  
CCSRCH220J50  
CKSRYB222K50  
CKSRYB331K50

C 604 606 652  
C 605  
C 607 654 705 706 759  
C 608  
C 609 610 781

CKSYB224K16  
CKSYB103K25  
CKSYB224K16  
CSZS010M16  
CEV100M16

C 611 671

CKSRYB103K25  
CCH1148  
CKSRYB391K50  
CCH1148  
CEV101M10

C 653 220  $\mu$  F/10V  
C 655  
C 658 220  $\mu$  F/10V  
C 665

## ====Circuit Symbol &amp; No. Part Name=====

## Part No.

C 666  
C 670  
C 672  
C 703 704  
C 716

CKSQYB102K50  
CKSQYB272K50  
CKSQYB333K25  
CCSRCH090D50  
CEV100M16

C 751 752  
C 753 754 755  
C 756

CCSRCH221J50  
CCSRCH221J50  
CKSRYB472K50

Unit Number :

Unit Name : Switch P.C.Board(C)

D 1 2 3 4

M 1 Motor(Spindle)  
M 2 Motor Unit(Carriage)  
M 3 Motor Unit>Loading)  
S 1 2 Switch(Home,Clamp)

GL4800  
CXM1058  
CXA4649  
CXA4267  
CSN1012

Unit Number :

Unit Name : Detector P.C.Board

P 1 2 3 4 Photo Transistor

PT4800

## Miscellaneous Parts List

S 25 PU Unit  
S 751 752 Switch(Door Open/Close)  
P 1 2 Switch(Open,Close)  
Reflector

CGY1020  
CSN-078  
CSN1022  
ON2153

- The RS-D2/UC and RS-D2/ES Parts Lists enumerate the parts which differ from those enumerated in the RS-D2/EW Parts List only.

The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The RS-D2/EW Parts List is given on page 1-37.

## FM/AM UNIT

Circuit Symbol & No.	RS-D2/EW Part No.	RS-D2/UC Part No.	RS-D2/ES Part No.
Q51	DTC124EU	*****	*****
Q124	*****	*****	2SA1586
Q125	*****	*****	2SC4116
Q132	DTC124EU	DTC124EU	*****
CF52,53	CTF1193	CTF1247	CTF1247
L2	LCTBR12K2125	*****	*****
R11	*****	RS1/10S0R0J	RS1/10S0R0J
R60	RS1/16S473J	*****	*****
R101	RS1/10S331J	RS1/10S391J	RS1/10S391J
R120	*****	*****	RS1/16S684J
R129	RS1/16S184J	RS1/16S184J	RS1/16S104J
R132	RS1/16S0R0J	RS1/16S0R0J	*****
R133	*****	*****	RS1/16S333J
R134,138	*****	*****	RS1/16S0R0J
R136	*****	*****	RS1/16S563J
R137	RS1/16S223J	RS1/16S223J	*****
R139	*****	*****	RS1/16S472J
R140	*****	*****	RS1/16S103J
R141	*****	*****	RS1/16S334J
R142	RS1/16S473J	RS1/16S473J	RS1/16S0R0J
R151,152	RS1/16S332J	RS1/16S222J	RS1/16S222J
C101	CKSRYB682K50	CKSRYB332K50	CKSRYB332K50
C103	CKSQYB392K50	CKSQYB272K50	CKSQYB272K50
C112	CKSYB183K50	CKSYB333K25	CKSYB683K16
C125	CEV100M16	CEV100M16	*****
C126	*****	*****	CEV2R2M50
C127	CEV4R7M35	CEV4R7M35	*****
C132	CSZSR47M20	CSZSR47M20	*****
C151,152	CKSQYB183K25	CKSQYB393K25	CKSQYB393K25

## REMOTE CONTROL ASSY

Circuit Symbol & No.	RS-D2/EW Part No.	RS-D2/UC Part No.	RS-D2/ES Part No.
D4	MA110-1A	*****	*****

## CONTROL UNIT(SYSTEM)

Circuit Symbol & No.	RS-D2/EW Part No.	RS-D2/UC Part No.	RS-D2/ES Part No.
IC502	CWV1044	*****	*****
IC601	PD4477B	PD4477A	PD4477A
Q516	2SC2712	*****	*****
D503	MA3047M	*****	*****
VR501	CCP1152	*****	*****
R549	RS1/10S473J	*****	*****
R550,567	RS1/10S102J	*****	*****
R555	RS1/10S102J	*****	*****
R556	RD1/4PS620JL	*****	*****
R570,571	RS1/10S473J	*****	*****
R672	*****	RS1/10S0R0J	RS1/10S0R0J
R603	RS1/10S104J	RS1/10S104J	RS1/10S154J
R604	*****	RS1/10S154J	RS1/10S104J
R955,957	*****	*****	*****
C524	CKSQYB103K50	*****	*****
C527	CEA100M16LL	*****	*****

Unit Number :

Unit Name : Logic Unit(UC,ES)

====Circuit Symbol & No. Part Name=====	Part No.
IC 1201	TC4538BF
D 1201 1202 1203	MA110-1A
D 1204	MA141WK-MT
R 1201	RS1/10S394J
R 1202 1204	RS1/10S102J
R 1203	RS1/10S184J
C 1201	CSZSR4R7M16
C 1202	CSZS2R2M16

## ●ICs

## ●Pin Functions (PD4448A)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1-25	NC			Not used
26	VSS			GND
27	SW1	I		Wireless/Wired select input
28	KINH	O	C	Key input inhibit output
29	KDT	O	C	Key data wired output
30,31	NC			Not used
32-35	KD0-KD3	I		Key data input
36-42	KST0-6	O	N	Key strobe output
43,44	NC			Not used
45	REMOUT	O	C	Remote control output
46	VDD			Power supply
47	XIN	I		Crystal oscillating element connection pin
48	XOUT	O		Crystal oscillating element connection pin
49	RESET	I		Reset input
50	WDOUT	O	N	Watch dog timer output
51-57	NC			Not used
58	VSS			GND
59-64	NC			Not used

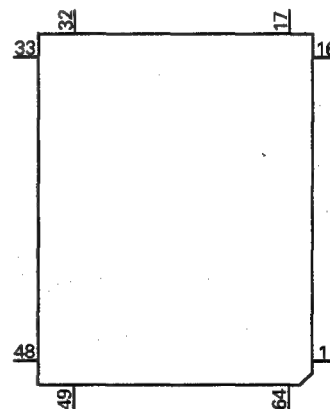
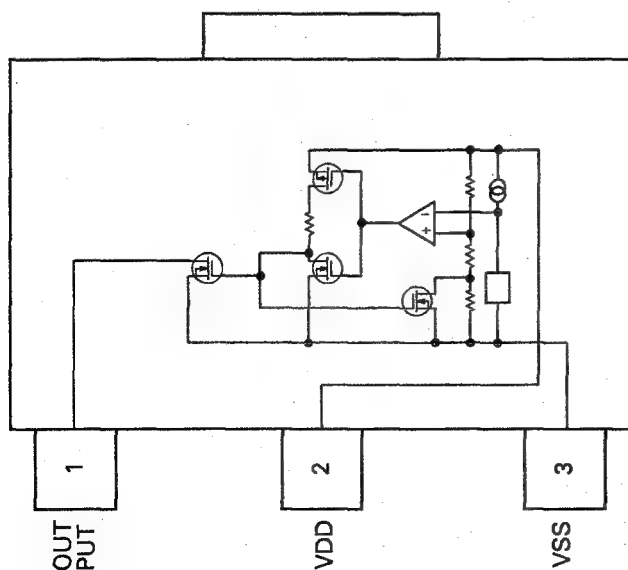
Output Format	Meaning
C	CMOS
N	N channel open drain

\*PD4448A

IC's marked by \* are MOS type.

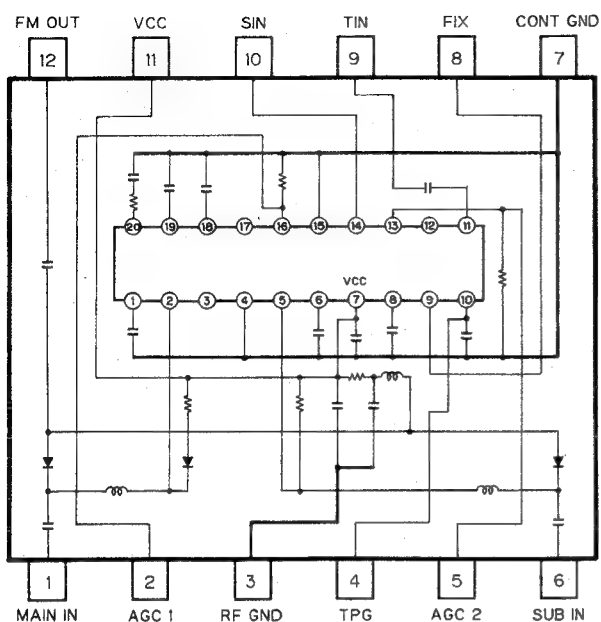
Be careful in handling them because they are very liable to be damaged by electrostatic induction.

S-80722AN-DK

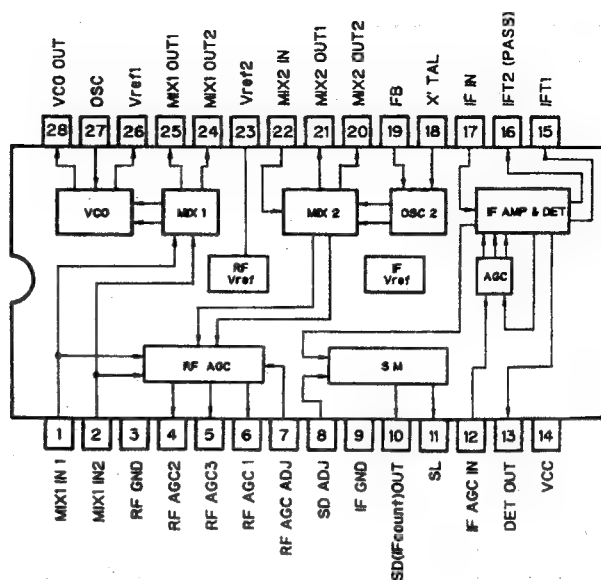




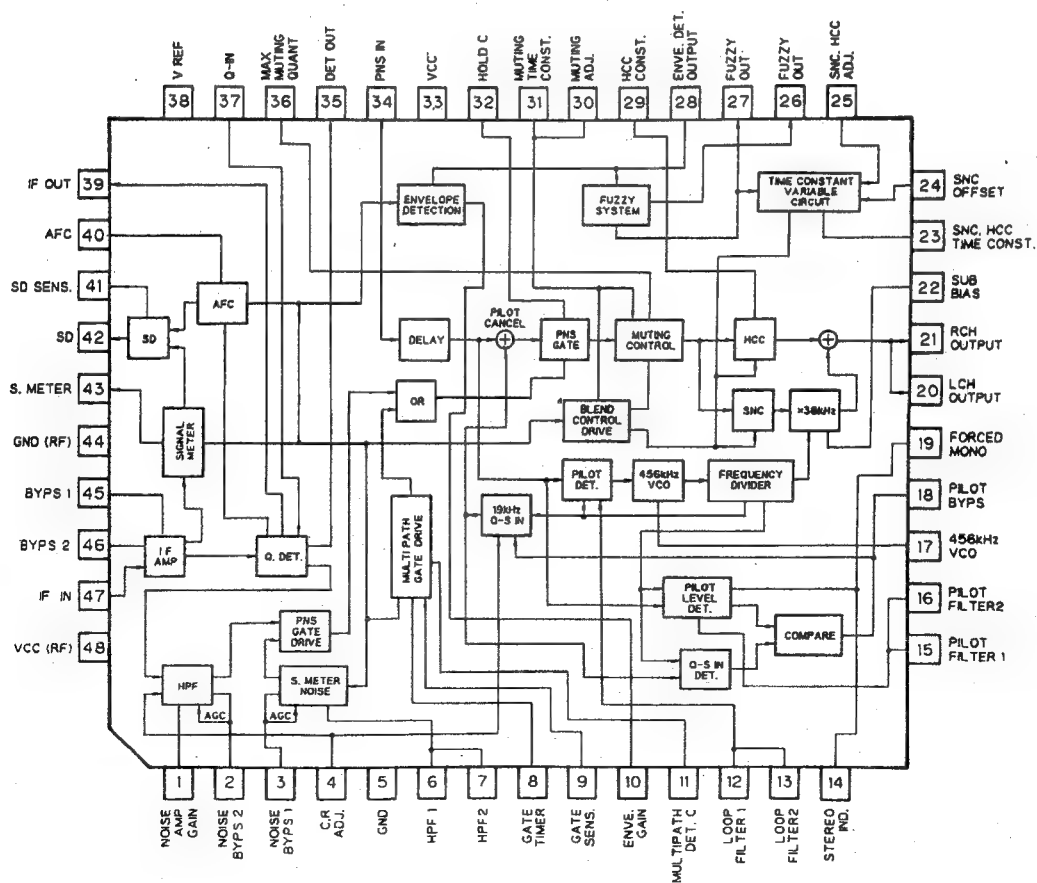
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PAF001A



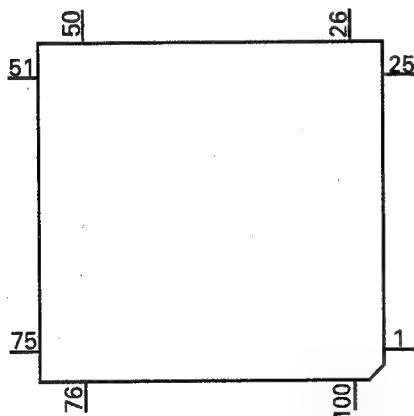
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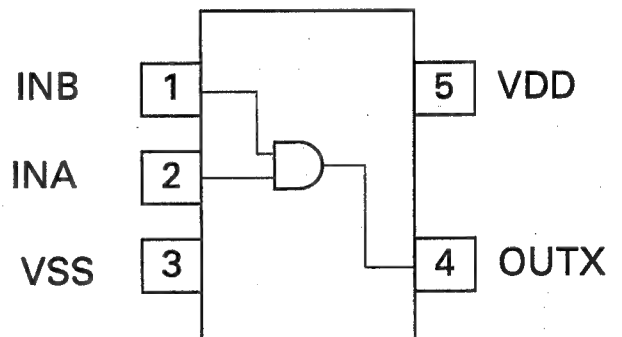
●Pin Functions (HD61202TF)

Pin No.	Pin Name	I/O	Function and Operation
1	VDD		Power supply
2-5	V4R-V1R		LCD drive level power supply
6	VEE		LCD drive circuit power supply
7-70	Y64-Y1	O	LCD segment output
71	VEE		LCD drive circuit power supply
72-75	V1L-V4L		LCD drive level power supply
76	GND		GND
77-84	D0-D7	I/O	Data BUS input/output
85	NC		Not used
86,87	CS3,CS2	I	Chip select input
88	NC		Not used
89	CS1	I	Chip select input
90	NC		Not used
91	LRST	I	Reset input
92	R/W	I	Read/write select input
93	D/I	I	Data/instruction select input
94	CL	I	Synchronizing signal input of display data latch
95,96	$\phi 2, \phi 1$	I	Clock input
97	E	I	Write / read enable input
98	FRM	I	Frame signal input
99	ADC	I	Display RAM Y address select input
100	M	I	LCD drive AC signal input

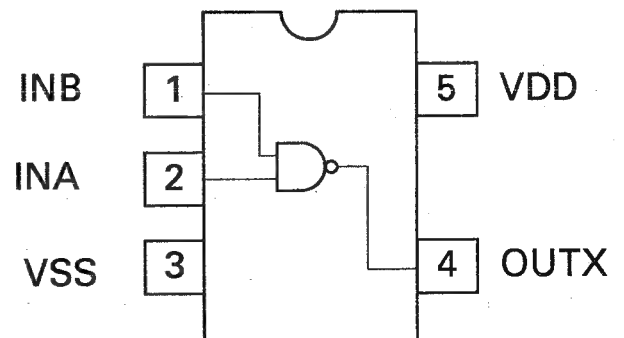
\*HD61202TF



TC4S81F



TC7S00F

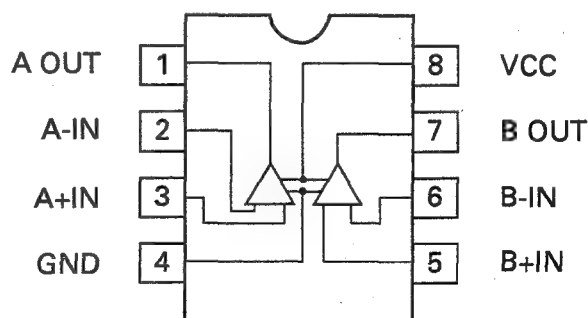
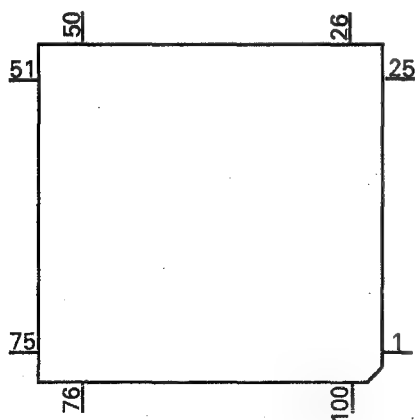


## ●Pin Functions (HD61203TF)

Pin No.	Pin Name	I/O	Function and Operation
1-19	X19-X1	O	LCD common drive output
20	VEE		LCD drive circuit power supply
21,22	V6L,V5L		LCD drive level power supply
23,24	V2L,V1L		LCD drive level power supply
25	VDD		Power supply
26	DL	I/O	Shift resistor data input/output
27	FS	I	Frequency select input
28,29	DS1,DS2	I	Display duty select input
30	C	I	Oscillator
31	NC		Not used
32	R		Oscillator
33	NC		Not used
34	CR		Oscillator
35	STB	I	Test input
36	SHL	I	Shift direction select input of shift resistor
37	GND		GND
38	NC		Not used
39	M/S	I	Master slave select input
40,41	$\phi 2, \phi 1$	O	Clock output
42	NC		Not used
43	FRM	O	Frame signal output
44	M	O	LCD drive AC signal output
45	NC		Not used
46	FCS	I	Shift clock phase select input
47	DR	I/O	Shift resistor data input/output
48	CL1	I	Test input
49	CL2	I/O	Shift clock input/output
50	TH	I	Test input
51,52	V1R,V2R		LCD drive level power supply
53,54	V5R,V6R		LCD drive level power supply
55	VEE		LCD drive circuit power supply
56-100	X64-X20	O	LCD common drive output

\*HD61203TF

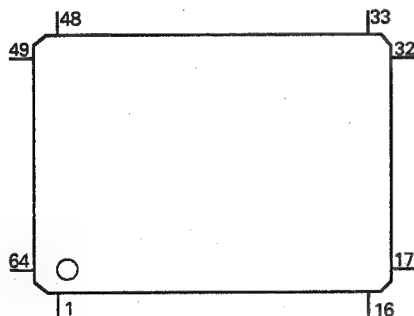
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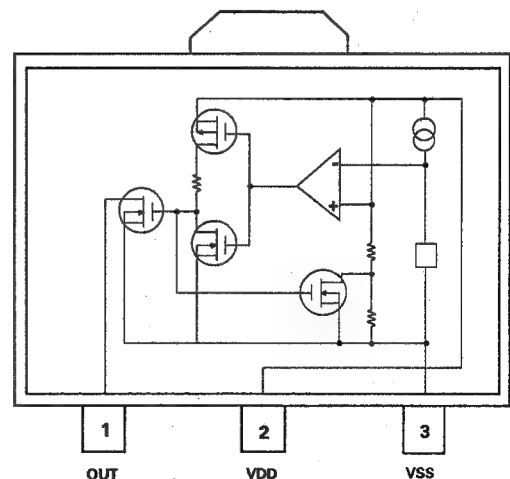
## ●Pin Functions (PD3254A)

Pin No.	Pin Name	I/O	Function and Operation
1	XTAL	I	Oscillation continuation terminal
2	EXTAL		
3	MD1	I	Not used
4	MD0	I	Cassette mechanism strobe input 0
5	NMI	I	Not used
6	VCC		
7	STBY	I	Not used
8	VSS		GND
9-13	KEYIN0-4	I	Key data input
14,15	NC		Not used
16	E	O	Enable clock output for LCD driver
17	SDTT	O	Serial data output for extension I/O IC
18	SDTR	I	Serial data input from extension I/O IC
19	SCK	I	Serial clock input/output for extension IC
20-22	NC		Not used
23	SBUSY	O	Busy output for extension I/O IC
24	LRES	O	Reset output for LCD driver
25	NC		Not used
26	IOS	O	Chip select output for LCD driver
27	AS	O	Not used
28	LCDR/W	O	Read / write output for LCD driver
29	PRRD	O	Read signal output for ROM IC
30	WAIT	I	Not used
31	VCC		
32-39	A15-A8	O	Address BUS output for ROM IC
40	VSS		GND
41-48	A7-A0	O	Address BUS output for ROM IC
49-56	D0-D7	I/O	Data input/output for ROM IC
57-60	CT1-CT4	O	LCD contrast control output
61	REMIN	I	Remote control signal input
62	BRST	O	Reset output extension I/O IC
63	NC		Not used
64	RES	I	Reset input

\*PD3254A



S-80743AN-D7

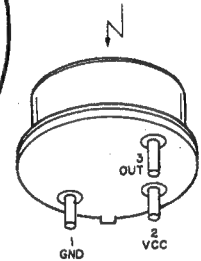
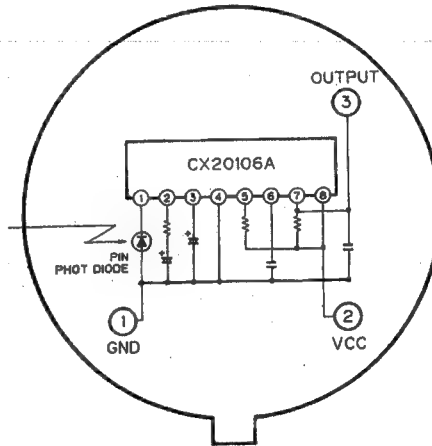
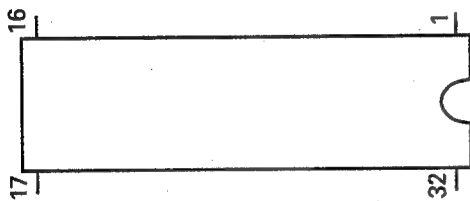


## ●Pin Functions (PD3266A)

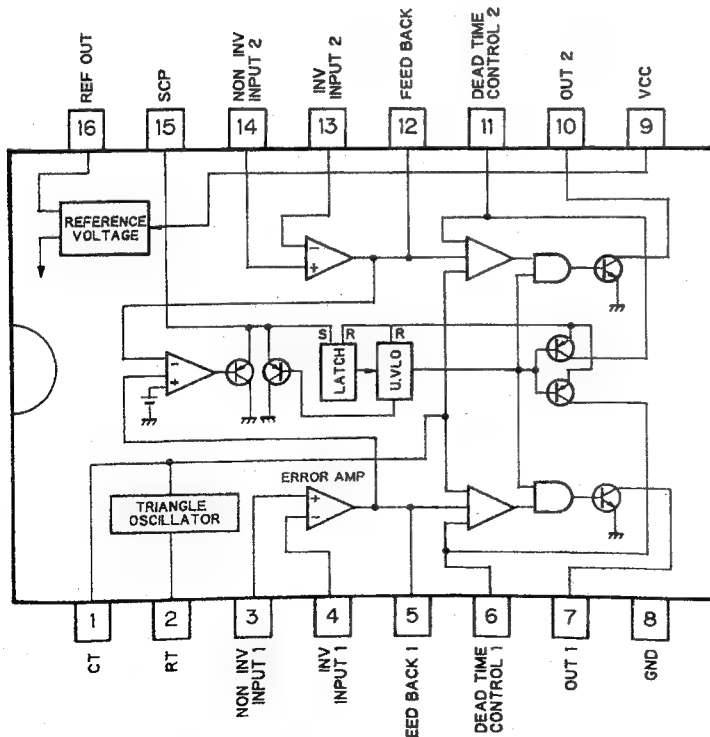
Pin No.	Pin Name	I/O	Function and Operation
1	NC		Not used
2,3	A16,A15	I	Address BUS input
4	A12	I	Address BUS input
5-12	A7-A0	I	Address BUS input
13-15	D0-D2	O	Data output
16	VSS		GND
17-21	D3-D7	O	Data output
22	CE	I	Chip enable input
23	A10	I	Address BUS input
24	OE	I	Output enable input
25	A11	I	Address BUS input
26,27	A9,A8	I	Address BUS input
28,29	A13,A14	I	Address BUS input
30	NC		Not used
31	A16	I	Address BUS input
32	VDD		Power supply

\*PD3266A

BX-1393



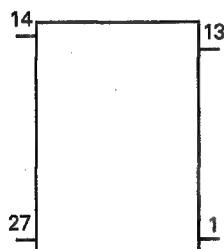
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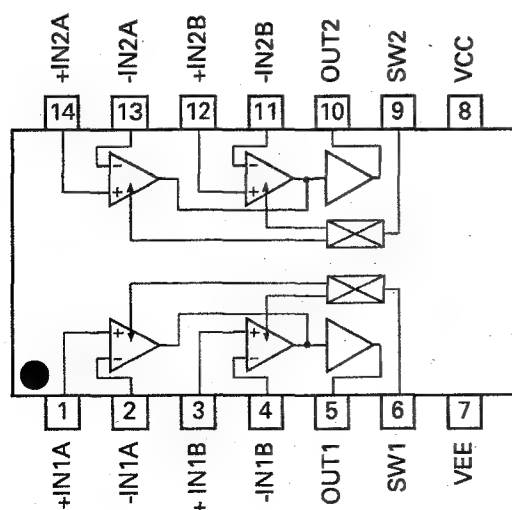
● Pin Functions (CWV1044)

Pin No.	Pin Name	I/O	Function and Operation
1	VDD		Power supply for RDS controller
2	GND		GND
3	RDSRDY	I	Ready input from system control IC
4	RDSEN	O	Enable output for system control IC
5	RDSCCK	I	Serial clock input from system control IC
6-9	RSDST7-4	I/O	Data input/output to system control IC
10	RDSSEL	I	Select input from system control IC
11	RDSRST	I	Reset input from system control IC
12	SCHK	I	Unit check input
13	TSEL	I	FM/AM tuner unit select input
14	GND		GND
15	COMP	I	FM composite signal input
16	FM5V		Power supply decoder
17	BPO	O	Band pass filter test output
18	SLCHK	O	SL check output
19	FLCHK	O	FL check output
20	SD	I	RDS decode control input
21	SL	I	Signal level input from tuner
22	SK	I	SK signal detect input
23	RLOCK	O	RDS test output
24	DK	O	DK signal detect output
25	ERROR	O	Disapprove of error correction output
26	CORR	O	Error output
27	RECEV	O	RDS synchronizing test output

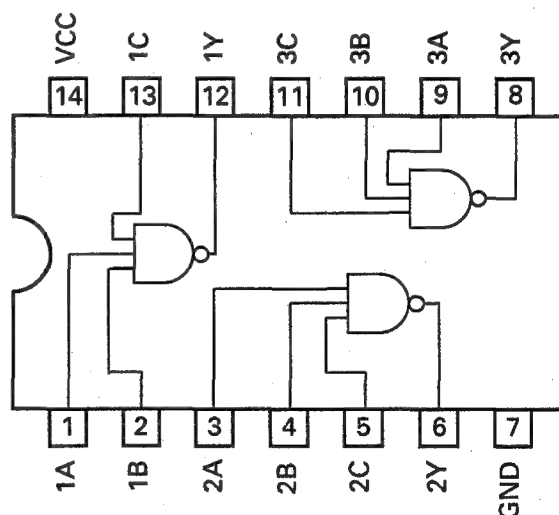
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BA3129F



\*TC74HC10AF



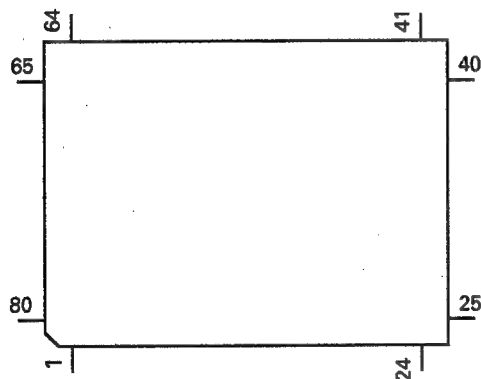
## ●Pin Functions (PD4477A)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	SBUSY	I/O	C	Reception enable input/output for extension I/O IC
2	RDSRST	O	C	Reset output for RDS IC
3	RDSSEL	O	C	Select output for RDS IC
4	AVSS			A/D GND
5	RDSEN	O	C	Enable output for RDS IC
6	RDSRDY	I		Ready input from RDS IC
7	AVREF	I		A/D converter reference voltage
8	SDI	I		Serial data input from extension I/O IC
9	SDO	O		Serial data output for extension I/O IC
10	SSCK	I/O	C	Serial clock input/output to extension I/O IC
11	RDSDI	I		Serial data input for RDS IC
12	RDSDO	O	C	Serial data output for RDS IC
13	RDSCK	I/O	C	Serial clock input/output for RDS IC
14	BRST	O	C	P-BUS reset output
15	BRXEN	I/O	C	P-BUS reception enable input/output
16	BSRQ	I		P-BUS serial pole request input
17	BSIO	I/O	C	P-BUS serial data input/output
18	BSCK	I/O	C	Communication serial clock input/output
19-26	AD0-AD7	I/O	C	Extension RAM data/address input/output
27-29	A8-A10	O	C	Extension RAM address output
28,29	XA0,XA1	O	C	Extension I/O select output
30	CS	O	C	External RAM chip select
31	LCDPW	O	C	LCD back light power supply control output
32	SWVDD	O	C	Free space Assy power supply control output
33	VSS			GND
34	SUBPW	O	C	Grille power control output
35	IPPW	O	C	Power supply control output for IP BUS interface IC
36	BSENS	I		Back up power sense input
37	ASENBO	O	N	Slave power supply control output
38	VDIN	I		Power supply short sensor input
39	LATCNT	O	N	Latch control output
40	RD	O	C	Extension IO / RAM read signal output
41	WR	O	C	Extension IO / write signal output
42	TESTIN	I		Test program mode input
43	ASTB	O	C	Timing output for extension RAM
44	TUNPW	O	C	Tuner power control output
45	PEE	O	C	Beep tone output
46	SCS	O	C	Chip select output for external RAM
47	SYSPW	O	C	System power supply control output
48	CDRST	O	C	Reset for CD mechanism module
49	PCL/ILLO	O	C	Clock adjustment output / Inside of frap illumination output
50	FM/AM	O	C	Not used
51	MONO	O	C	Forced mono output
52	DSNS	I		Grille detach sense
53	MSSLIN	I		Master/slave select input
54	MS/SL	O	C	Master/slave select output
55	ANTFIX	O	C	Tuner diversity fix select output
56	TX	O	C	IP BUS data output
57	RX	I		IP BUS data input
58	NC			Not used
59	SD	I		SD input
60	RESET	I		Reset input
61	REMIN	I		Remote control signal input
62	ASENS	I		ACC power sense input
63	BSENS	I		Back up power sense input
64	PDTI	I		PLL data input

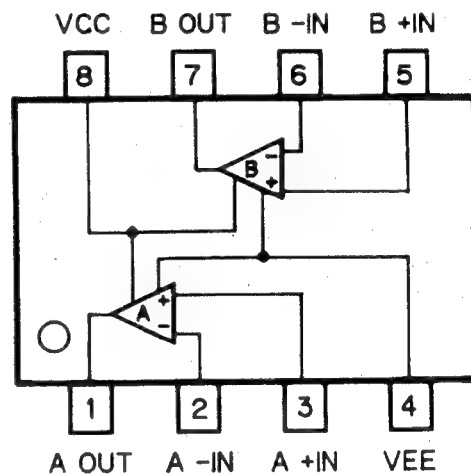
Pin No.	Pin Name	I/O	Output Format	Function and Operation
65	PDTO	O	C	PLL data output
66	PCK	O	C	PLL clock output
67	PCE	O	C	PLL chip enable output
68	VDD			Power supply
69,70	X1,X2			Main system clock oscillator connection
71	GND			GND
72	NC			Not used
73	TELIN	I		Telephone mute signal input
74	AVDD			Positive power supply terminal for analog circuit
75	AVREF	I		A/D converter reference voltage
76	SL	I		Signal level input from tuner
77	MODEL	I		Model select input
78	TMUTE	O	C	Tuner mute output
79	TXRST	O	C	Not used
80	MUTE	O	C	System mute output

Output Format	Meaning
C	CMOS
NM	N channel open drain

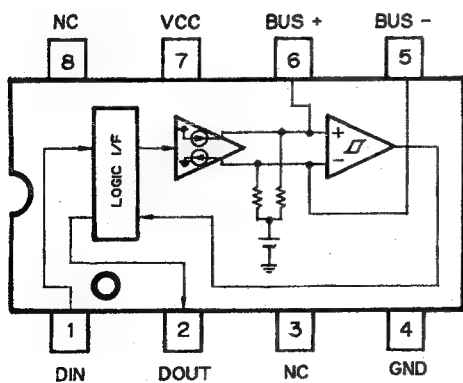
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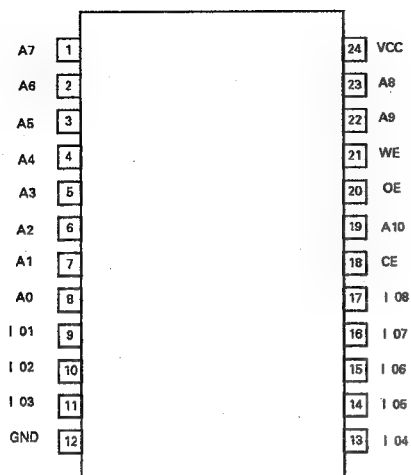


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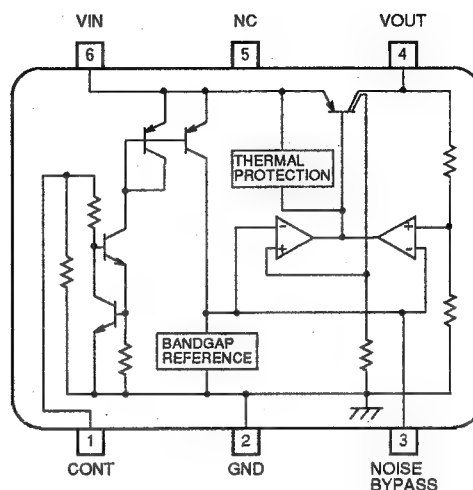




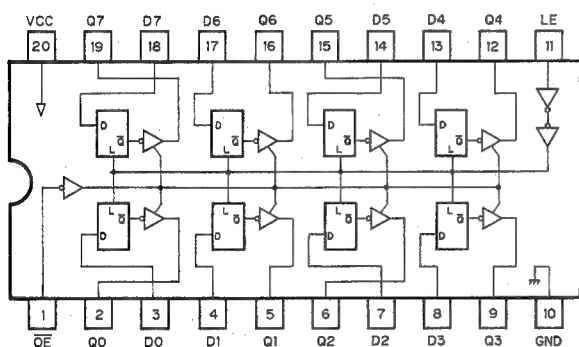
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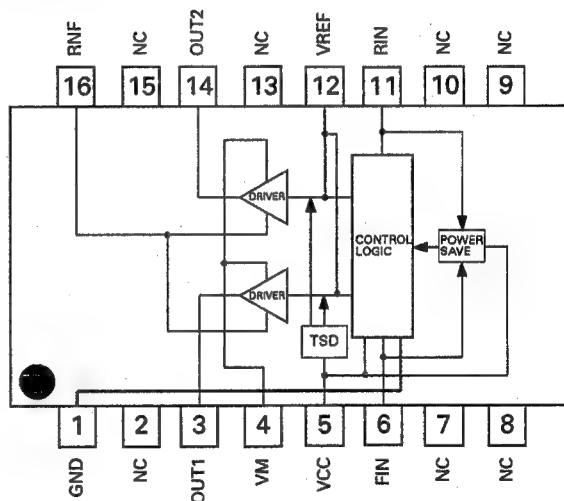
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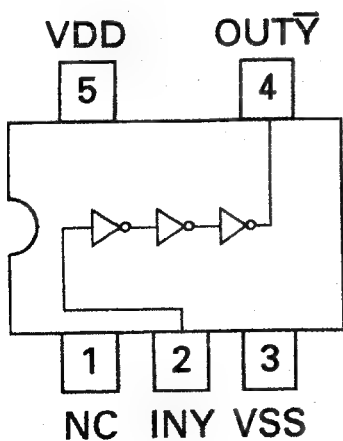
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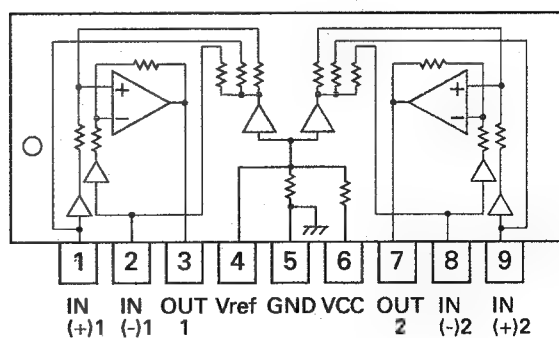
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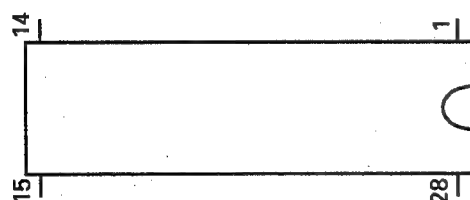
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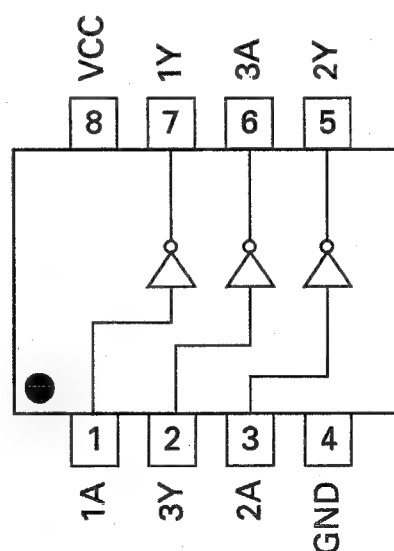
●Pin Functions (AK5369-VS)

Pin No.	Pin Name	I/O	Function and Operation
1	AGND		Analog circuit GND
2	AINL	I	Lch analog input
3	ZEROL	I	Lch zero level input
4	VA+		Analog positive power supply terminal +5V
5	VA-		Analog negative power supply terminal -5V
6	APD	I	Analog power down input
7	ACAL	I	Analog calibration input
8	NC		Not used
9	DCAL	O	Digital calibration output
10	DPD	I	Digital power down input
11	TEST	I	Test terminal
12	CMODE	I	Master clock select input
13	SMODE	I	Interface clock select input
14	L/R	I/O	Channel select input/output
15	BCK	I/O	Serial data clock input/output
16	SDATA	O	Serial data output
17	FSYNC	I/O	Flame synchronizing clock input/output
18	VD+		Digital power supply +5V
19	DGND		Digital circuit GND
20	CLK	I	Master clock input
21	OCLK	O	128fs clock output
22	NC		Not used
23	ICLK	I	128fs clock input
24	LGND		Analog logic ground terminal
25	VL+		Analog logic power supply +5V
26	ZEROR	I	Rch zero level input
27	AINR	I	Rch analog input
28	VREF	I	A/D converter reference voltage input

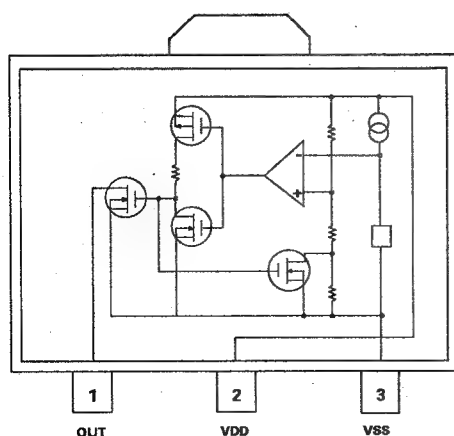
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TC7WU04F

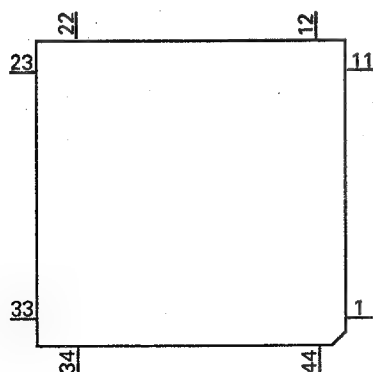
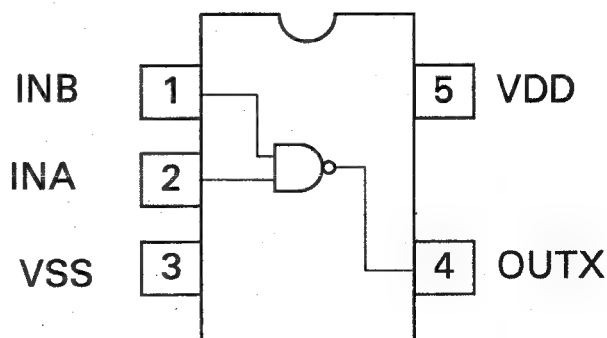


S-80732AN-DW



**●Pin Functions (M51581FP)**

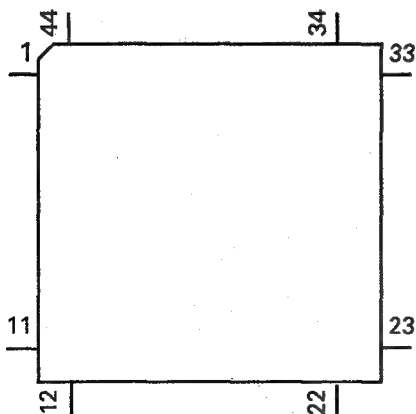
Pin No.	Pin Name	I/O	Function and Operation
1	TX	O	Digital audio interface format output
2	RESET	I	Reset input
3	RX1	I	Digital audio data input 1
4	NFR	O	RX1 level converter output
5	RX2	I	Digital audio data input 2
6	RXSEL	I	RX select input
7,8	PD1,PD2	O	Phase comparative output for charge pump VCO
9	UNLOCK	O	Unlock detect output
10	RXCKI	I	VCO clock input
11	RXCKO	O	VCO clock output
12	SDI	I	Serial audio data input
13	BCK	I/O	Digital audio bit clock input/output
14	LRCK	I/O	Audio data word select input/output
15	SDO	O	Serial audio data output
16	ADSDI	I	A/D converter serial audio data input
17	VSS		GND
18	ADSEL	I	Serial data audio source select input
19	FLAGI	I	Error flag input
20	FLAGO	O	Error flag output
21	WCK	O	Word clock output
22	ASL	I	Audio data sampling length select input "H":24 bits "L":16 bits
23	IIS	I	Audio data format select input
24	MSBF	I	MSB select input
25	LRCKPOL	I	LRCK pole select input "H":Lch "L":Rch
26	MSTCK	I/O	Master clock input/output
27	CKSEL	I	Master clock frequency select input
28	REFCK	I	Reference clock input for sampling frequency accurate check
29	CKACO	O	Sampling frequency accurate check output
30	MUTE	I	Mute control input
31,32	MODE0-1	I	Mode select input
33	IN/OUT	I	Transmission reception select input
34,35	CAT0,1	I/O	Category information input/output
36	TXOE	I	TX output enable input
37	FSINSEL	I	fs information select input
38	VDD		Power supply
39	VSS		GND
40	TYPE	I/O	Type information input/output
41,42	FS0-FS1	I/O	fs information input/output
43	COPY	I/O	Copy information input/output
44	EMP	I/O	Emphasis information input/output

**M51581FP**

**TC7S00F**


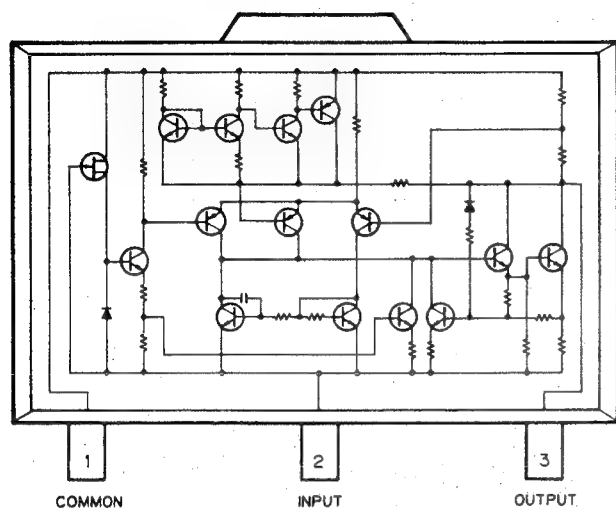
## ● Pin Functions (MSM82C55A-2GS)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	IOCS0	I		Extension I/O chip select input
2	GND			GND
3-4	XA1,XA0	I		Extension I/O address input
5	DISC	I		Disc sense input
6	LIMIT	I		Limit sense input of analog audio signal
7	ILLIN	I		Illumination signal input
8	NC			Not used
9	FLPOP	O	C	Flap motor open output
10	FLPCLS	O	C	Flap motor close output
11	SRST	O	C	Reset output
12	NC			Not used
13	FLPPW	O	C	Flap motor driver power ON/OFF output
14	RDTSW	O	C	Remote control regulator switching output
15	OPD	O	C	Offset calibration output for A/D converter
16	NC			Not used
17	VCC			5V
18-21	AUDSW1-4	O	C	Audio select output
22,23	NC			Not used
24	VCC			5V
25-32	D7-D0	I		External RAM data input
33	RESET	I		Reset Input
34	WR	I		Write signal input
35	FSSENS	I		Door sense input from free space remote control
36	CLOSE	I		CLOSE key input
37	OPTIN	I		Optical input
38	NC			Not used
39	VCC			5V
40	CSSENS	I		Flap close sense input
41	RDTIN	I		Remote control detach sense input
42	OSSENS	I		Flap open sense input
43	NC			Not used
44	RD	I		Read signal input

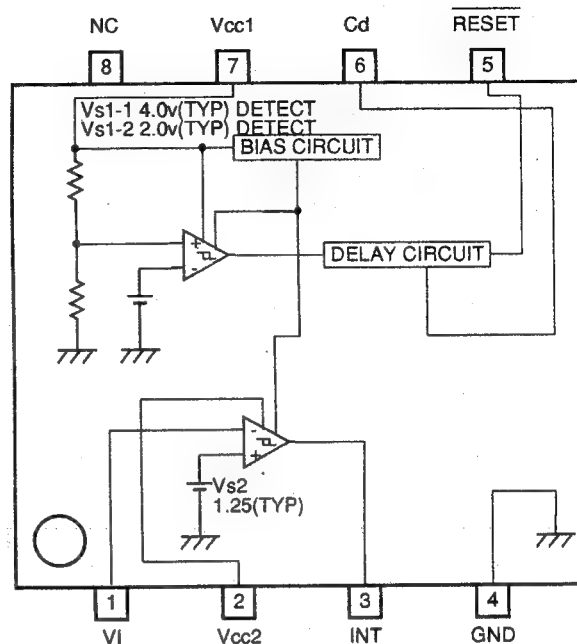
\*MSM82C55A-2GS



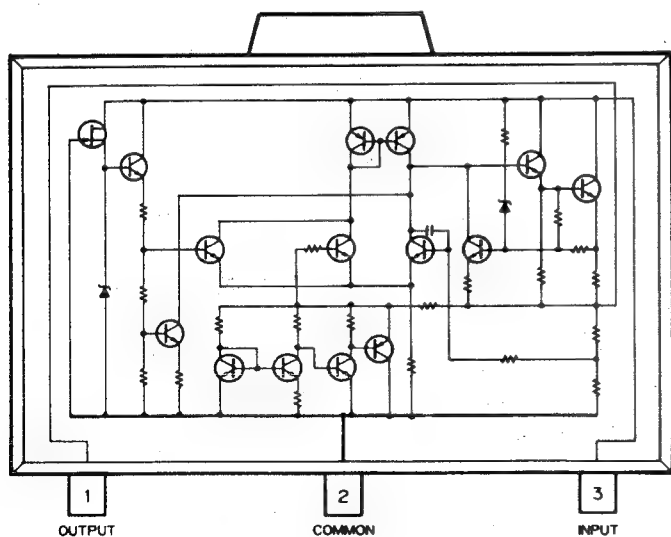
NJM79L05UA



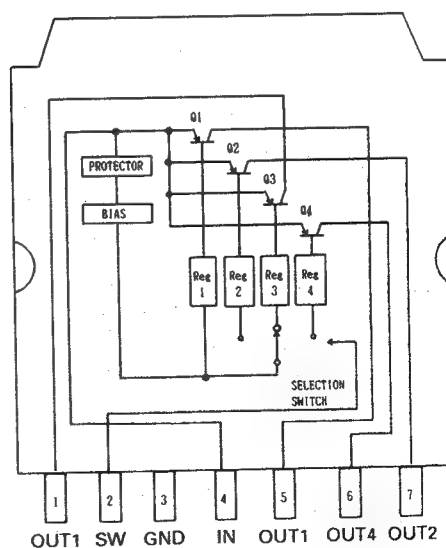
M62009FP



NJM78L05UA



TA8214K

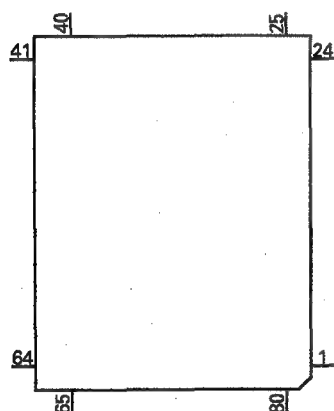


## ●Pin Functions(PD5256A)

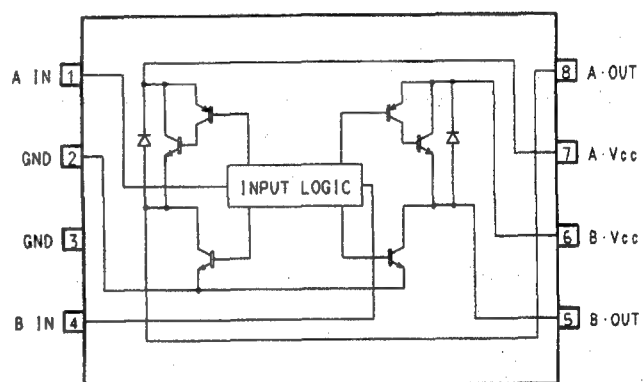
Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	NC			Not used
2	TEMP	I		Temperature detector
3	VDSENSE2	I		Short sense input
4	DCD	O	NM	Command/data appointment output
5	DCS	O	NM	Chip select output
6	DRDY	I		Ready input
7	DRST	O	NM	Reset output
8	A0	O	NM	Control signal distinguishing data from microcomputer
9	XSCK	O	NM	LSI clock output
10	XSO	O	NM	LSI data output
11	XSI	I		LSI data input
12	STB	O	C	LSI Strobe output
13	RST	O	C	Reset output pin
14	ENDOUT	O	C	Digital output enable signal
15	PEE	O	C	Beep tone output
16,17	NC			Not used
18	BRST	I		Bus communication reset input pin
19	BSRQ	O	C	Bus communications service request output pin
20	BRXEN	I/O	C	Bus communication reception enable input pin
21	BSCK	I/O	C	Bus serial clock input/output
22	BSO	O	C	Serial data output pin
23	BSI	I		Bus serial data input
24	EJSW	I		Eject signal input
25	REMIN	I		Remote control pulse input
26	CNVSS			GND
27	RESET	I		Reset input
28	FECNT	O	C	FE output control pin
29	NC			Not used
30	XIN	I		Crystal oscillating element connection pin
31	XOUT	O	C	Crystal oscillating element connection pin
32	VSS			GND
33-40	NC			Not used
41	POWER	O	C	CD +5V control
42	CONT	O	C	Servo driver power supply control
43,44	NC			Not used
45	VDSENS	I		VD over voltage sense input
46	VDCONT	O	C	VD control input
47	DSET	O	C	Disc set indicator control output
48	BLGT	O	C	LCD back light control output
49	VMC	O	C	Loading motor driver power supply
50	EJ	O	C	Loading motor EJECT control
51	LOAD	O	C	Loading motor LOAD control
52	NC			Not used
53	DINC	I		Disc insert sense input
54	EJTD	I		Disc eject position sense input
55	CLAMP	I		Disc clamp sense input
56	NC			Not used
57	HOLD	O		Hold control output
58	TBC	O	C	Tracking bank switching output
59	NC			Not used
60	MIRR	I		Mirror detector input
61	LOCK	I		Spindle lock detector input
62	FOK	I		FOK signal input
63	HOME	I		Home position detector input
64-68	NC			Not used
69	OPTSW	I		Digital output ON/OFF input
70	CDMUTE	O	C	CD mute output

Pin No.	Pin Name	I/O	Output Format	Function and Operation
71	ADENA	O	C	A/D reference voltage output
72	TESTIN	I		Test program mode input
73	VCC			Back up 5V
74	VREF	I		A/D reference voltage input
75	AVSS			A/D GND
76	CSEL			Compression select
77,78	NC			Not used
79	KD0	I		Analog key input 0
80	KD1	I		Analog key input 1

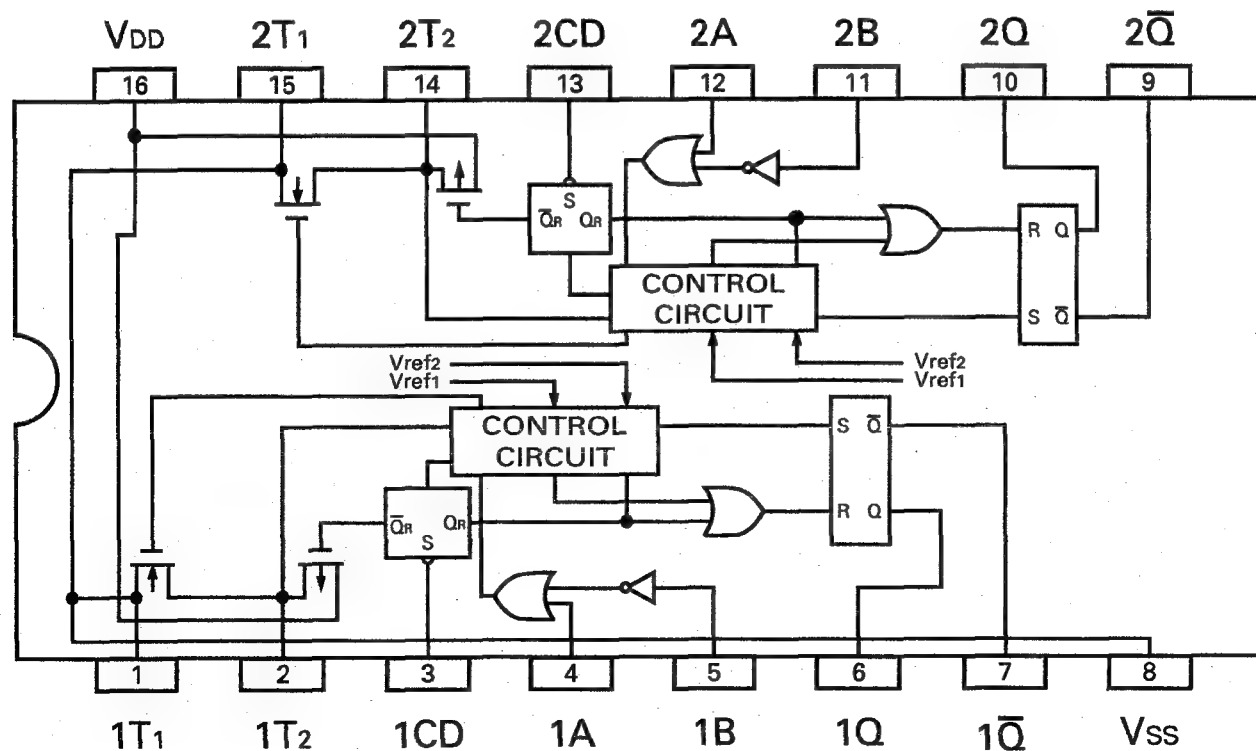
\*PD5256A



MB3854PF



TC4538BF



## ●LCD(CAW1189)

SEGMENT

COMMON

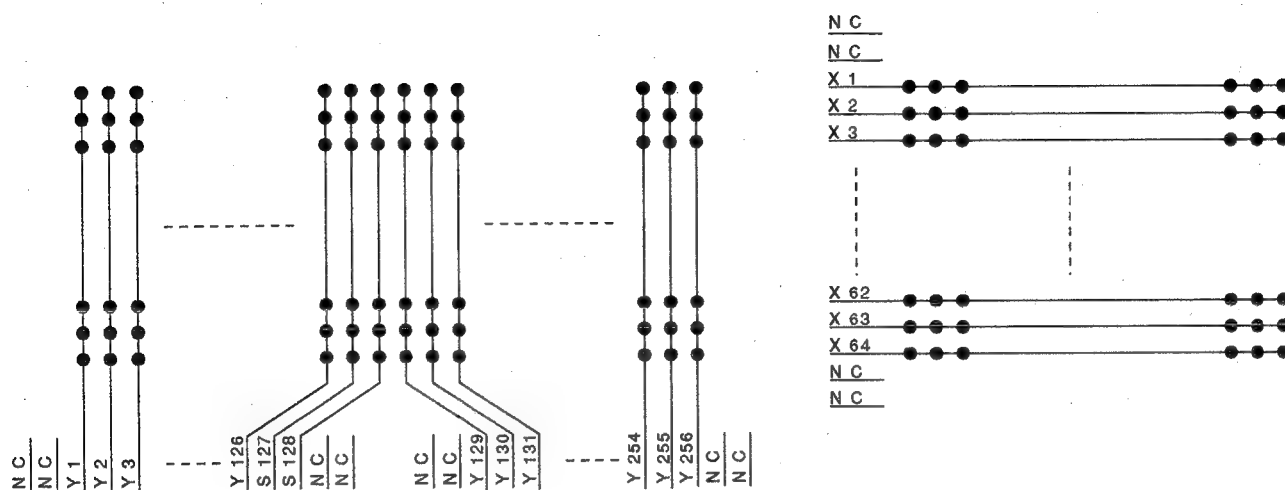


Fig.18

## ●FM FRONT END(CWB1070)

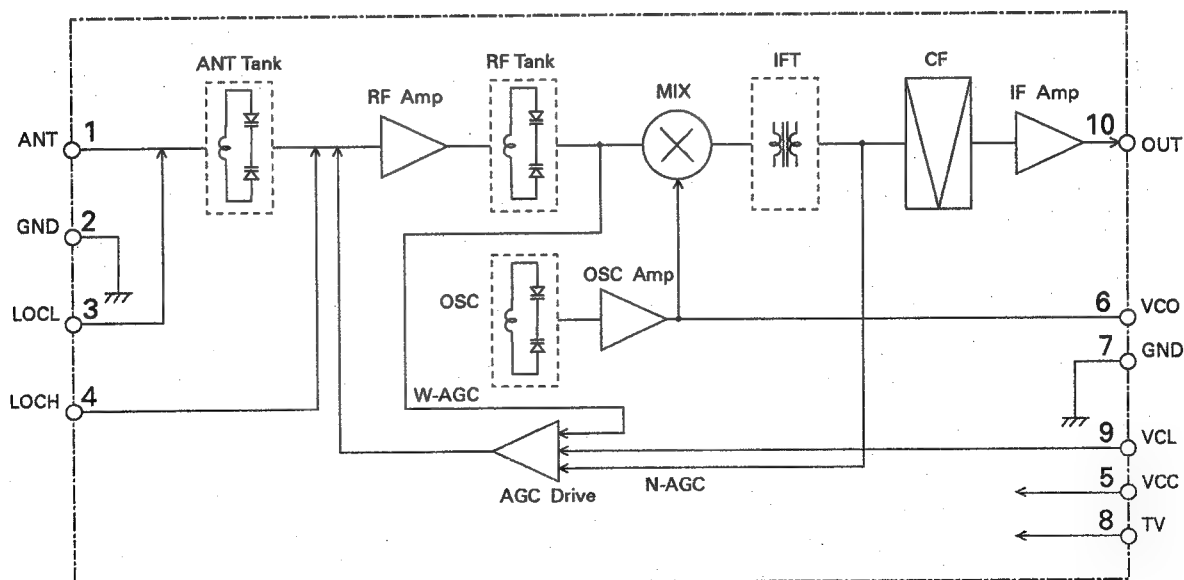


Fig.19



# Service Manual

ORDER NO.  
**CRZ1555**

**OPTICAL DIGITAL REFERENCE SYSTEM  
SYSTEM CONTROL TUNER/CD**

# RS-D2

**UC,EW,ES**

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply only the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

**COMPACT**  
**disc**  
**DIGITAL AUDIO**

## CHAPTER 2

### CONTENTS

1. EXPLODED VIEW .....	2-2
2. BLOCK DIAGRAM .....	2-9
3. PACKING METHOD .....	2-13
4. CIRCUIT DIAGRAM AND P.C.BOARDS PATTERN .....	2-20

## CHAPTER 2

## 1. EXPLODED VIEW

● Chassis (1) (Parts List:Page 1-33)

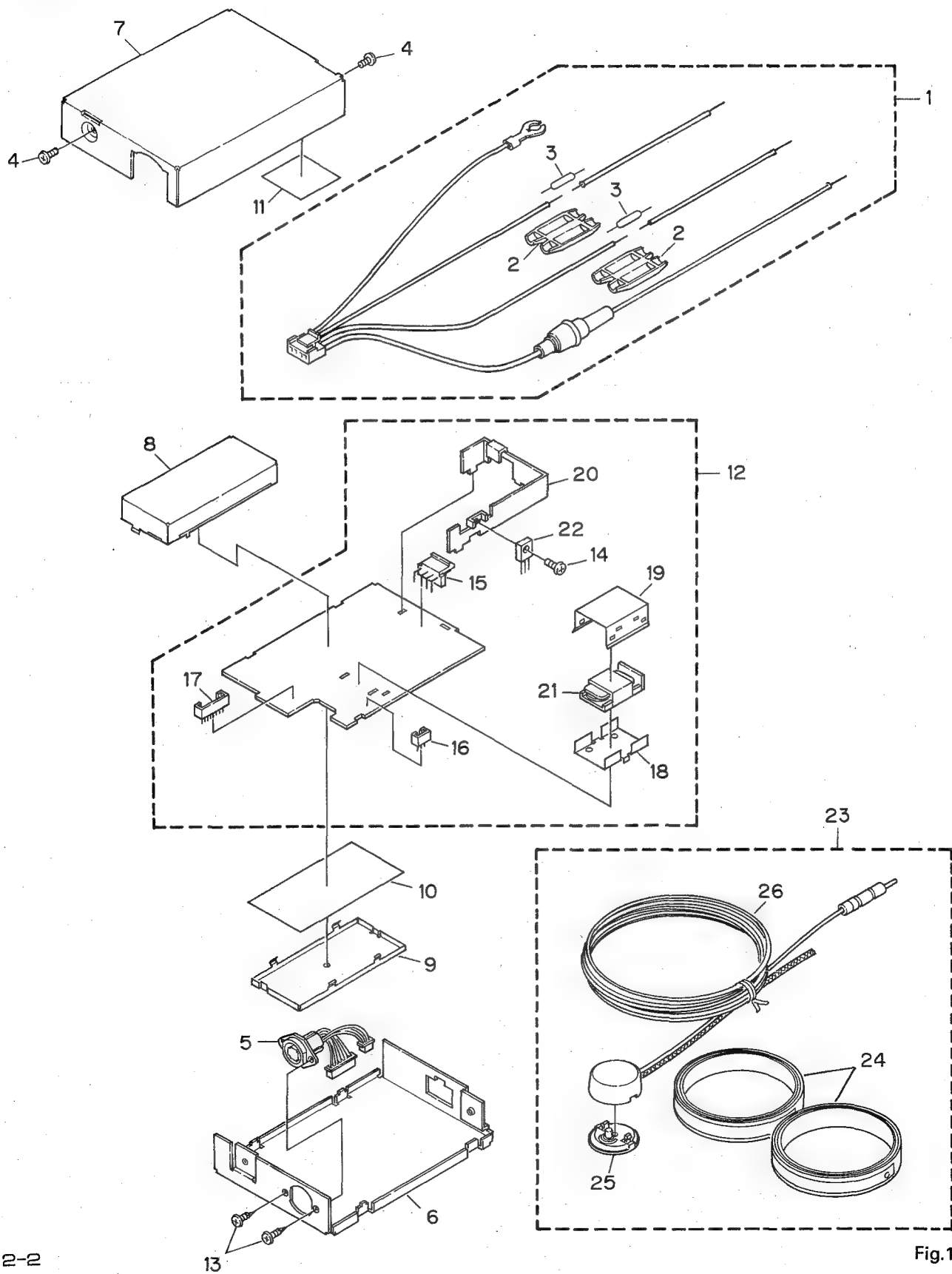
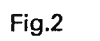


Fig.1



● Free Space Assy (Parts List:Page 1-34)

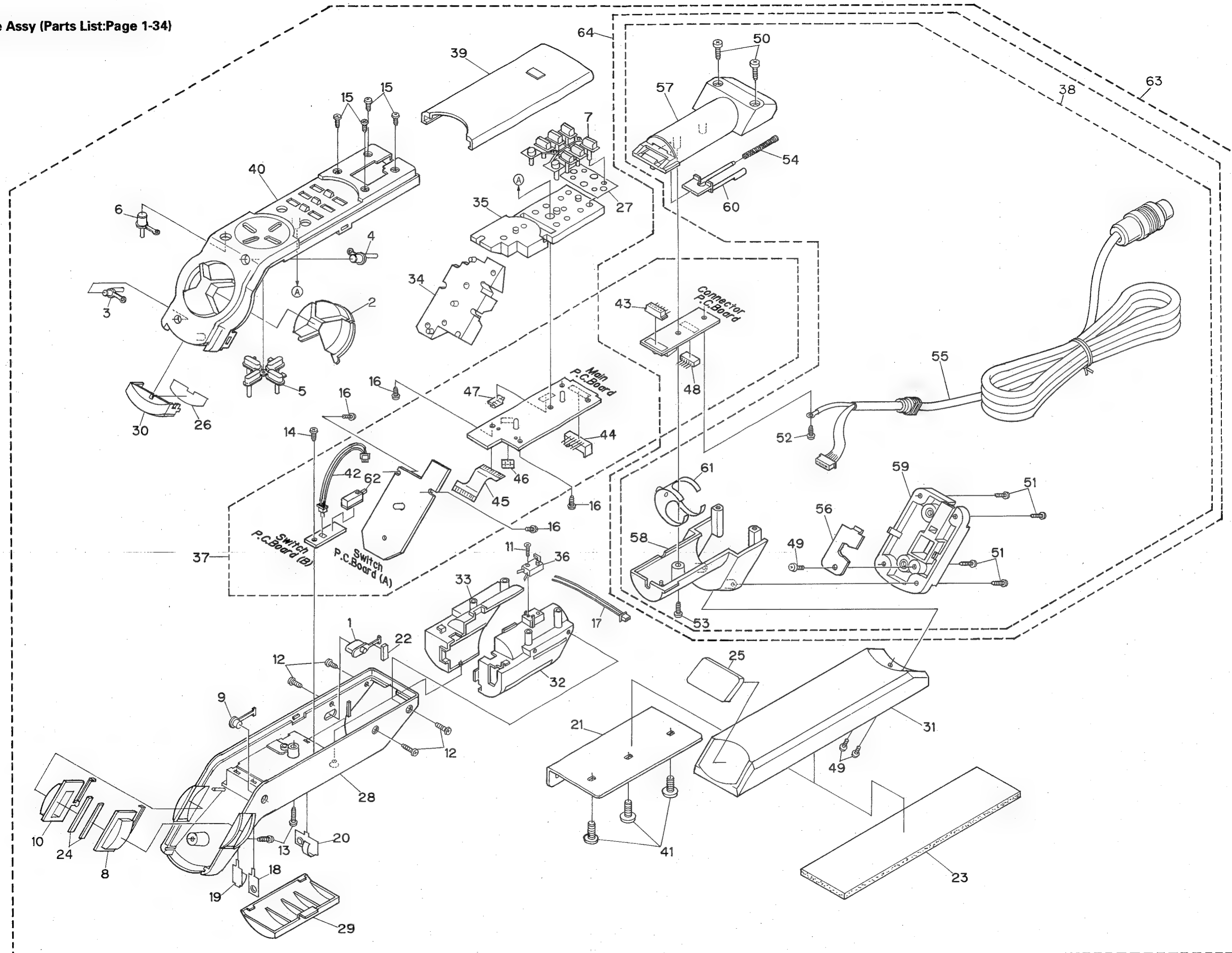


Fig.3

● CD Mechanism Module (Parts List:Page 1-35)

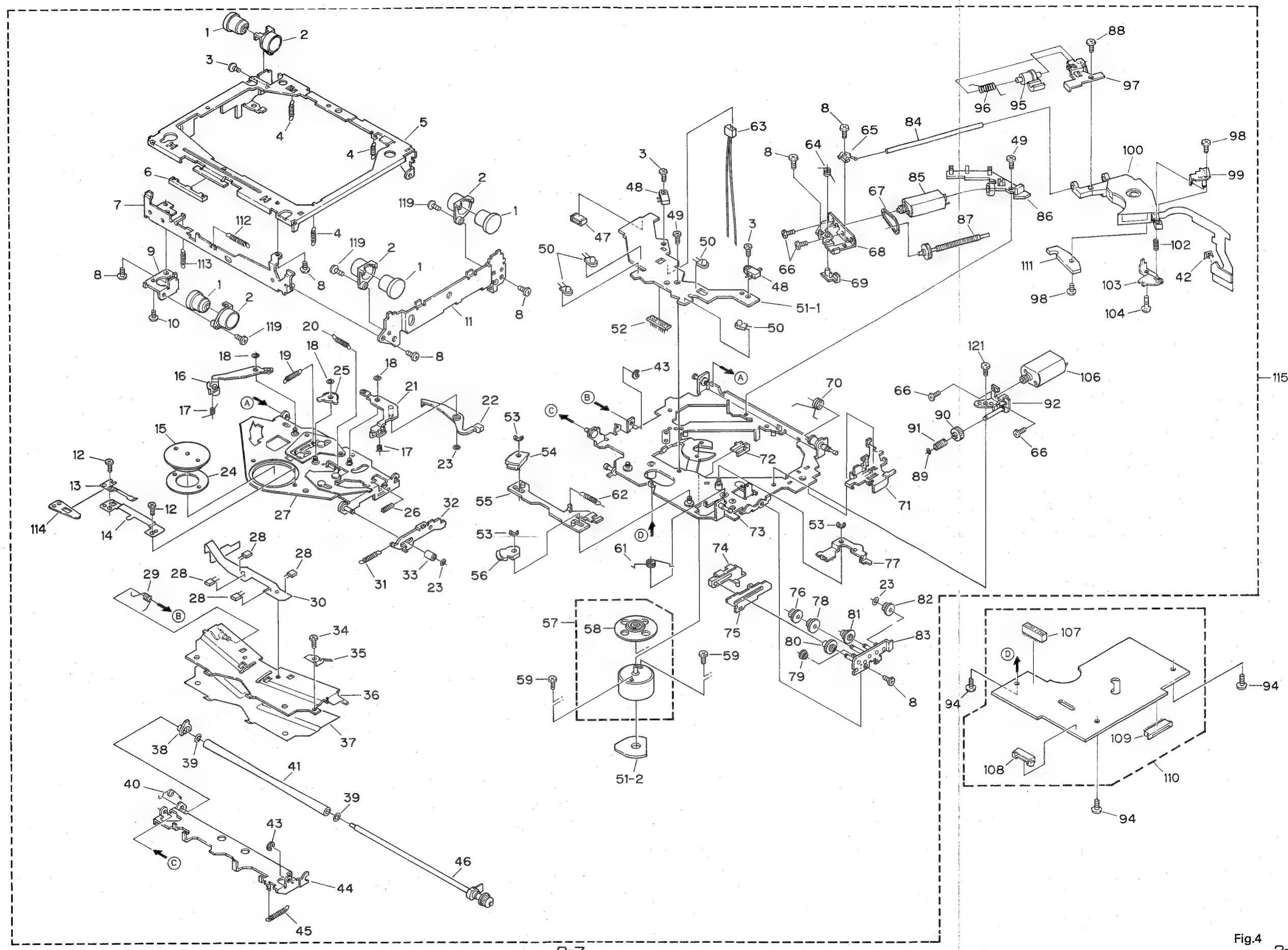


Fig.4 2-8

## 2. BLOCK DIAGRAM

## ● System

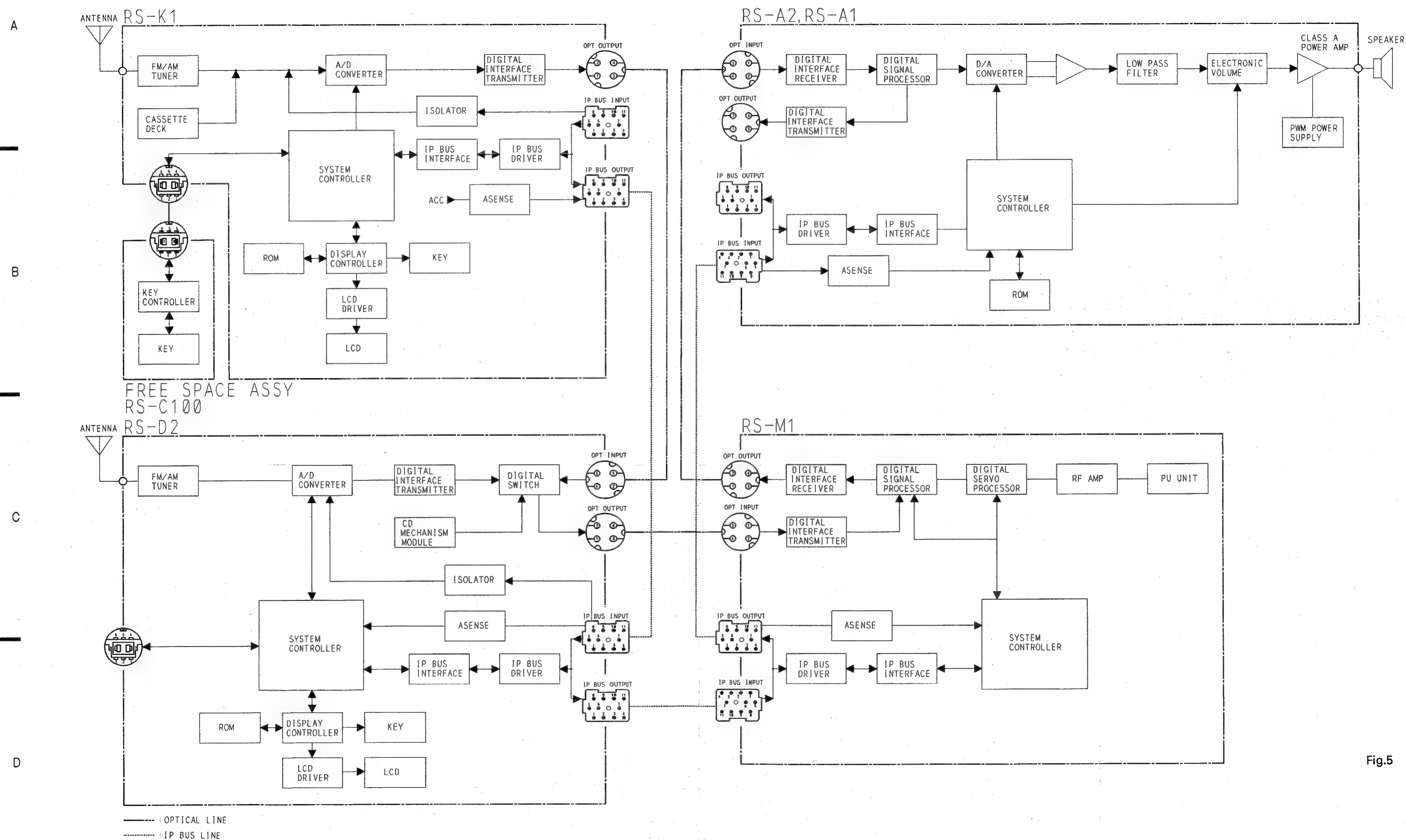


Fig.5

The schematic diagram illustrates the internal circuitry of a VCR, organized into several main functional blocks:

- CONTROL UNIT (CD MECHANISM MODULE):** This section at the top left contains the CD pickup, tracking focus, carriage motor, spindle motor, load motor, and photo sensor. It includes ICs like IC 351 UC1347, IC 601 UPD63746C, and IC 701 UPD63750C, along with various transistors and diodes.
- FM/AM UNIT:** Located in the middle left, this unit handles radio reception. It includes an antenna fix, FM front end, FM IF amp, FM IF decoder, and AM tuner IC. Key components include IC 1 KHA2739, IC 201 PAFO00A, and IC 501 LC72140M.
- POWER SUPPLY UNIT:** Situated at the bottom left, this unit manages power regulation. It features a DC/DC converter, LCD power regulators, and a full-wave rectifier. Components include IC 100 TL431, IC 901 PD3294A, and various electrolytic capacitors.
- MOTHER P.C. BOARD:** The central hub of the system, containing the main CPU (IC 601 PD477A), digital interface transmitter (IC 701 AK5399), and various control logic ICs like IC 704 TC74HC10AF and IC 706 TC7504F. It also includes a tuner power switch and a tuner power regulator.
- OPT OUT P.C. BOARD:** A small board at the top right that handles optical output signals, featuring IC 704 and IC 705.
- CONTROL P.C. BOARD:** Located at the bottom right, this board controls the display and tape transport. It includes a remote control interface, a full dot matrix LCD, and a full dot matrix LCD driver. Key components include IC 901 PD3294A, IC 902 PD3294A, and IC 903 S-80743AN-D7.
- DRIVER P.C. BOARD:** Situated at the bottom right, this board drives the tape transport mechanism. It includes a tape motor, a tape transport motor, and a tape transport control motor. Key components include IC 704 and IC 705.

The diagram shows a complex network of connections between these units, with various signal lines (e.g., FM, AM, SYS, ILLUM) and power lines (e.g., VDD, VSS, GND) interconnecting the components. It also includes a remote control interface and a full dot matrix LCD display.

Fig.6  
-12



3. PACKING METHOD

3.1 GENERAL

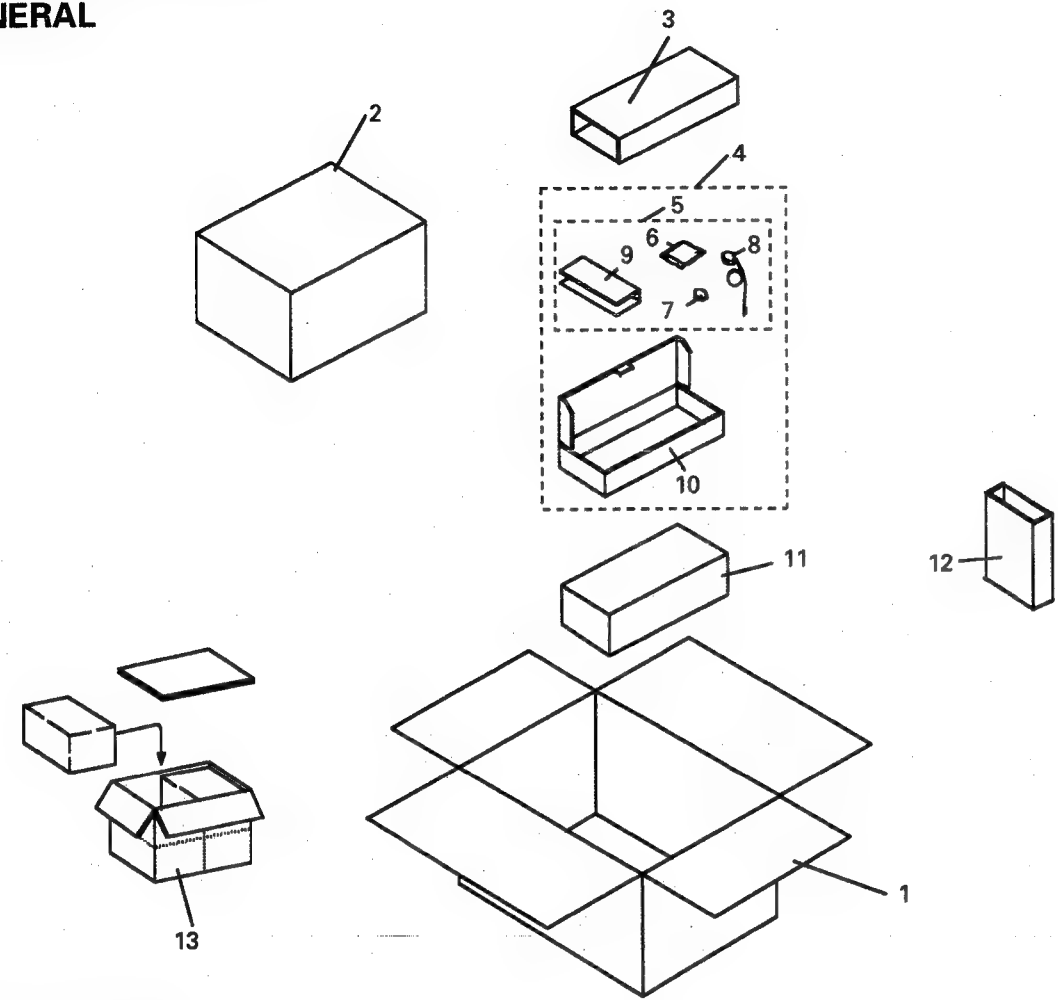


Fig.7

●Parts List(RS-D2/EW)

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Carton	CHG2362	9	Element Assy	CZX4532
* 2	Tuner CD	CPN1250	* 10	Carton	CHG2320
3	Spacer	CWH1312	11	Free Space Assy	CPX1020
4	Antenna Assy	CXA5784	12	Spacer	CWH1313
5	Antenna Unit	CXA5526	13	Contain Box	CHL2362
6	Accessory Assy	CEA1792			
* 6-1	Base Gauge	CZH4528			
7	Base Assy	CZX4533			
7-1	Double-side Seal	CZN4571			
8	Feeder Assy	CZX4534			

3.2 TUNER CD

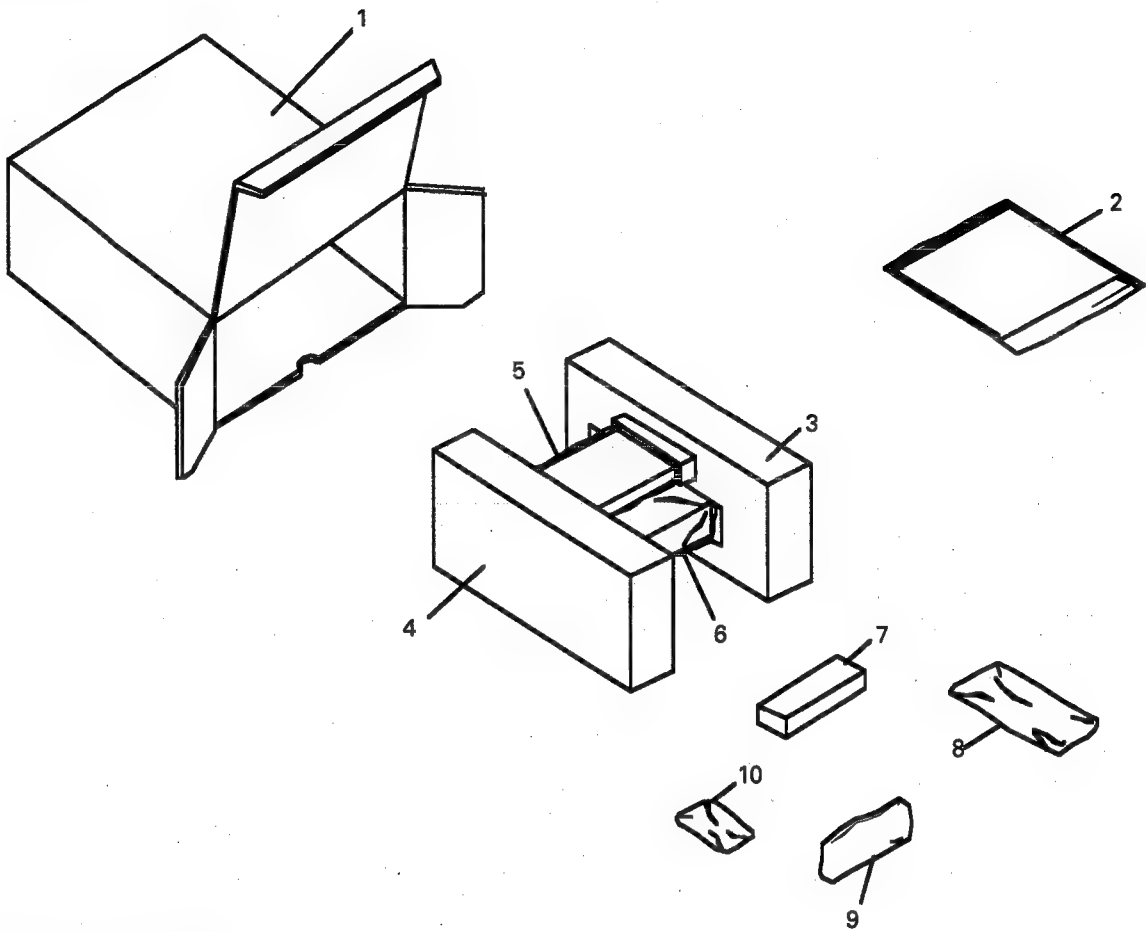


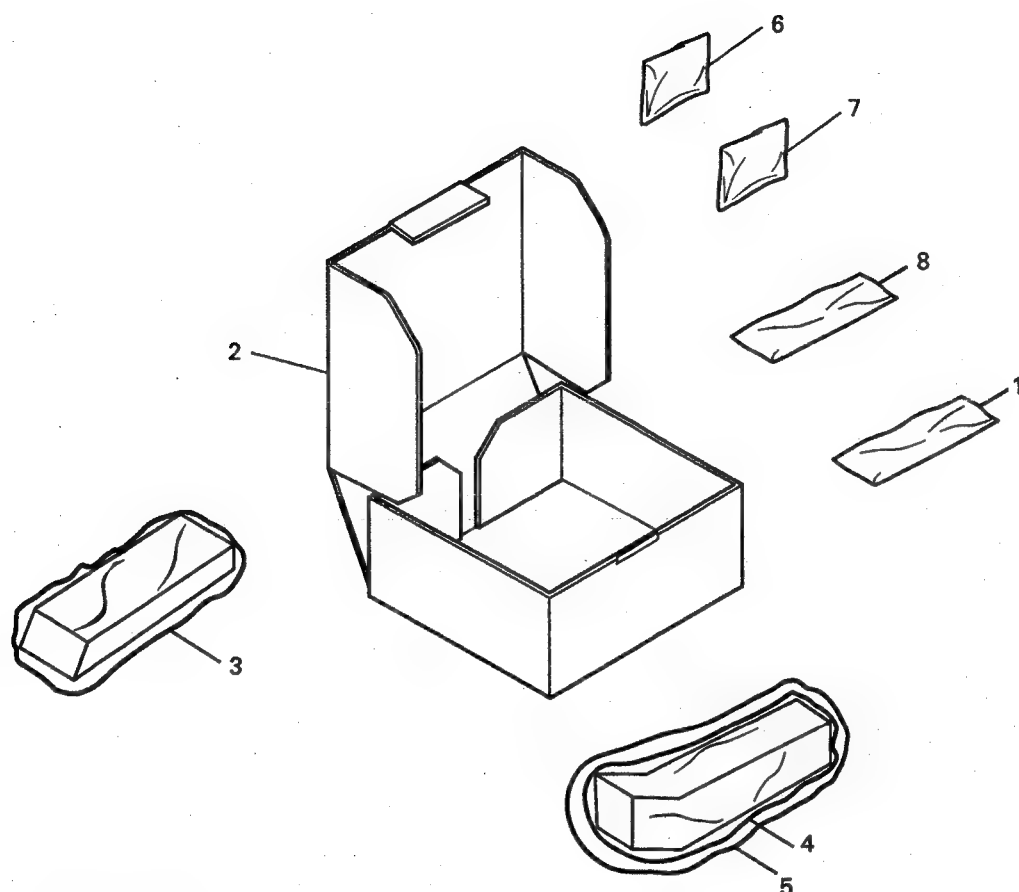
Fig.8

●Parts List(RS-D2/EW)

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Carton	CHG2403	8-1-1	Screw (X4)	BMZ50P080FMC
2-1	Owner's Manual	CRB1322	8-1-2	Screw (X1)	CBA1002
2-2	Owner's Manual	CRB1318	* 8-1-3	Polyethylene Bag	CEG-127
* 2-3	Caution Card	CRP1122	8-2	Spring	CBH-865
* 2-4	Passport	CRY1013	* 8-3	Holder(X2)	CNC3343
* 2-5	Card	CRY-062	8-4	Bush	CNV1917
* 2-6	Polyethylene Bag	E36-634	* 8-5	Polyethylene Bag	E36-613
2-7	Caution Card	CRN1043	9	Cord	CDE3945
3	Protector(L)	CHP1595	10	Accessory Assy	CEA1896
4	Protector(R)	CHP1596	10-1	Screw(X1)	BPZ20P060FZK
* 5	Polyethylene Bag	CEG-172	10-2	Screw(X1)	CBA1120
6	Cover	CEG1064	10-3	Holder(X1)	CNC4911
7	Case Assy	CXA5771	* 10-4	Installation Manual	CRB1297
8	Accessory Assy	CEA1969	* 10-5	Polyethylene Bag	CEG1101
8-1	Screw Assy	CEA1966			



## 3.3 FREE SPACE ASSY



## ●Parts List(RS-D2/EW)

Fig.9

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Seat	CNM3718	6-3	Screw(X3)	BPZ30P100FZK
2	Sub Carton	CHG2404	* 6-4	Polyethylene Bag	E36-613
3-1	Base	CNS2676	* 7	Battery	CEX1021
3-2	Spacer	CNM3818	8	Bracket	CNC4913
3-3	Cover	CEG1073			
* 4	Cover	CEG1083			
5	Air Cushioned Bag	CEG1143			
6	Accessory Assy	CEA1831			
6-1	Screw(X2)	BMZ30P060FMC			
6-2	Screw(X3)	BNC40P100FZK			

●The RS-D2/UC and RS-D2/ES Parts Lists enumerate the parts which differ from those enumerated in the RS-D2/EW Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The RS-D2/EW Parts List is given on page 2-13.

●General

Mark No.	Description	RS-D2/EW	RS-D2/UC	RS-D2/ES
		Part No.	Part No.	Part No.
1	Carton	CHG2362	CHG2363	CHG2364
* 2	Tuner CD	CPN1250	CPN1251	CPN1252
11	Free Space Assy	CPX1020	CPX1023	CPX1024
13	Contain Box	CHL2362	CHL2363	CHL2364

●Tuner CD

Mark No.	Description	RS-D2/EW	RS-D2/UC	RS-D2/ES
		Part No.	Part No.	Part No.
1	Carton	CHG2403	CHG2405	CHG2407
2-1	Owner's Manual	CRB1322	CRB1323	CRB1324
* 2-4	Passport	CRY1013	.....	.....
* 2-5	Card	CRY-062	.....	.....
* 2-7	Warranty Card	.....	CRY1053	.....
8	Accessory Assy	CEA1969	CEA1970	CEA1970
8-1	Screw Assy	CEA1966	CEA1967	CEA1967
8-1-4	Screw(X1)	.....	CBA-102	CBA-102
8-1-5	Nut(X2)	.....	NF50FMC	NF50FMC
* 8-5	Polyethylene Bag	E36-613	CEG-158	CEG-158
8-6	Strap	.....	CNF-111	CNF-111

●Free Space Assy

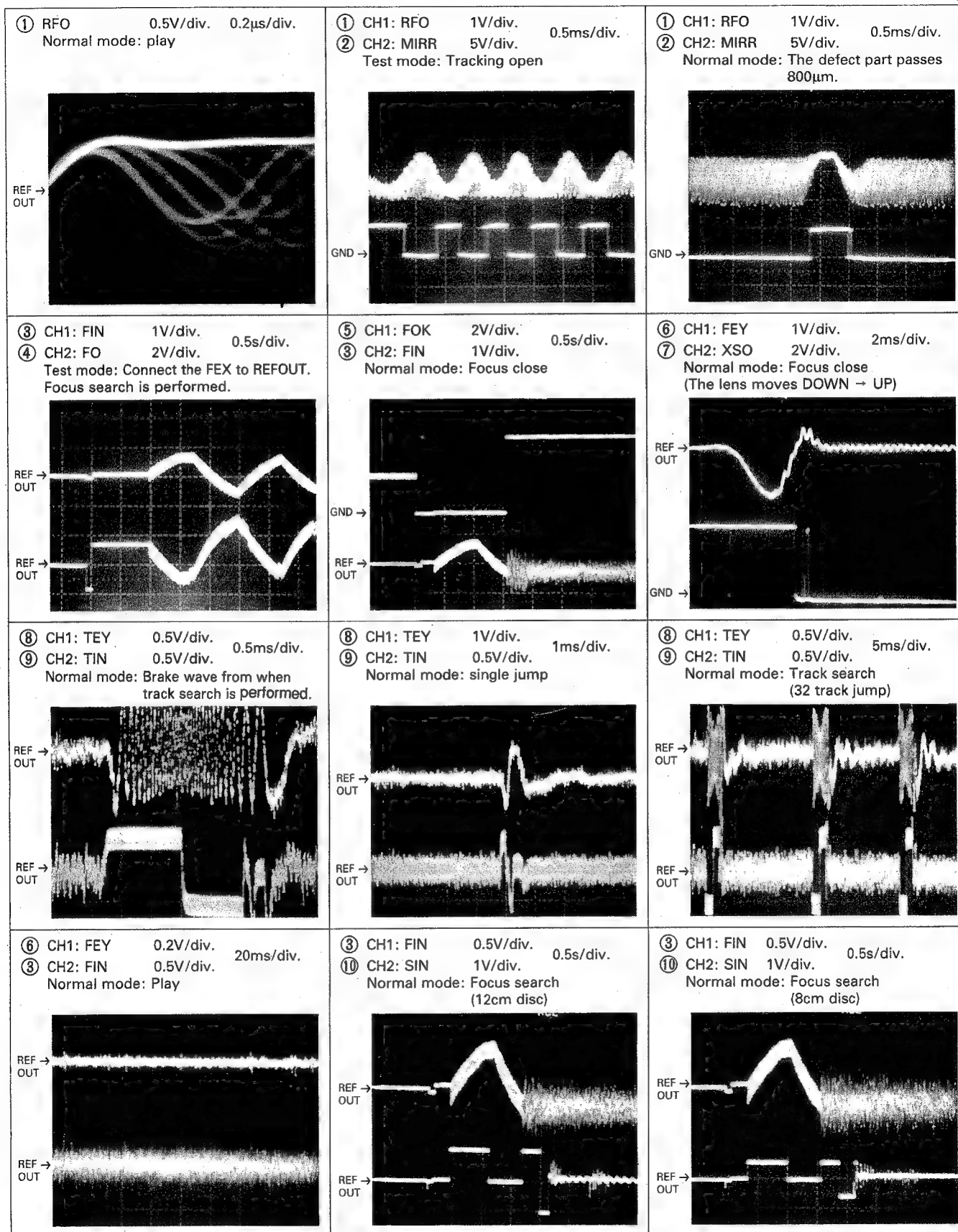
Mark No.	Description	RS-D2/EW	RS-D2/UC	RS-D2/ES
		Part No.	Part No.	Part No.
2	Sub Carton	CHG2404	CHG2406	CHG2408

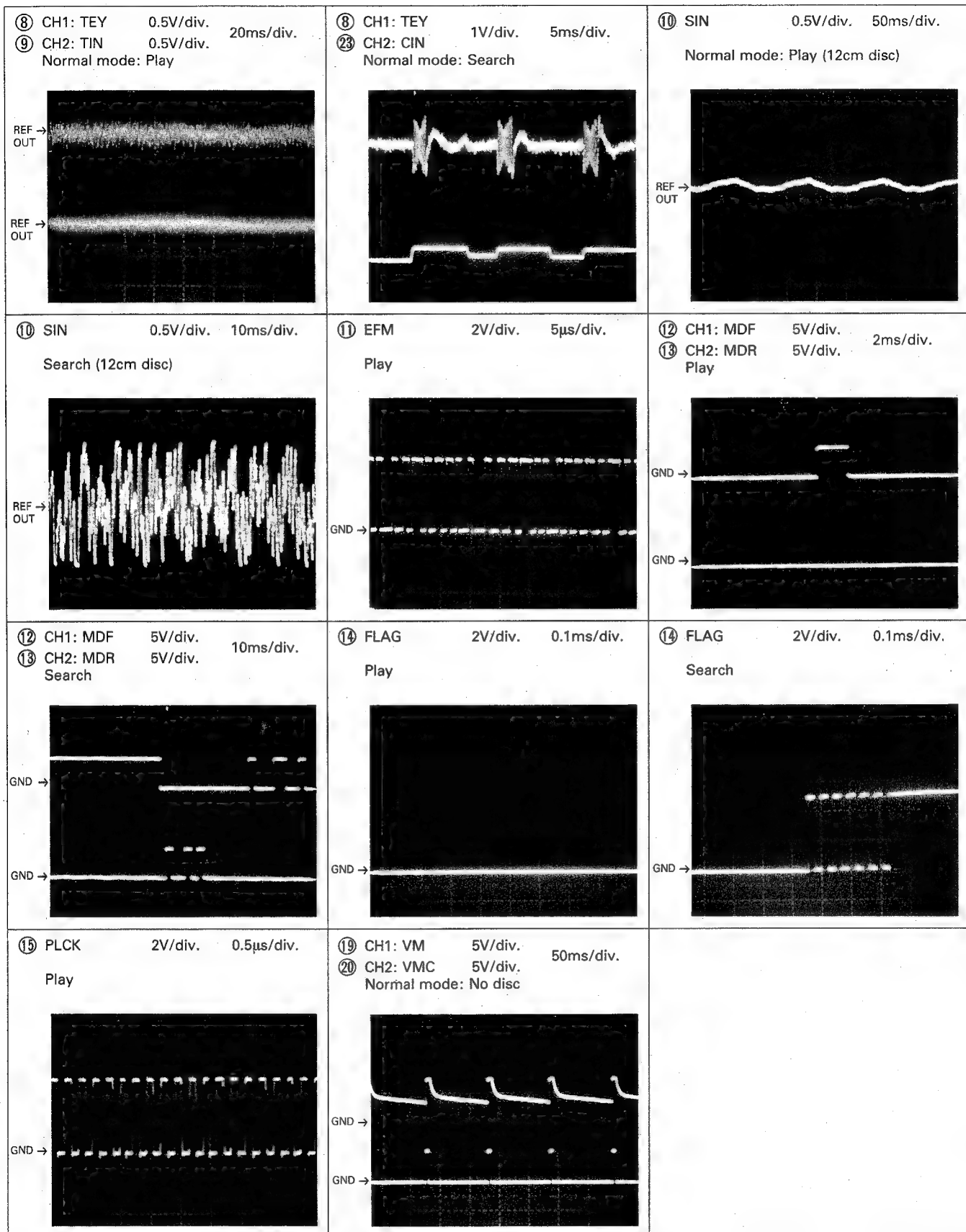
●Owner's Manual

Part No.	Language
CRB1318	English
CRB1322	English
CRB1323	English
CRB1324	English

## ● Wave Forms

Note: 1. The encircled numbers denote measuring pointes in the circuit diagram.  
2. Reference voltage  
REFOUT: 2.5V



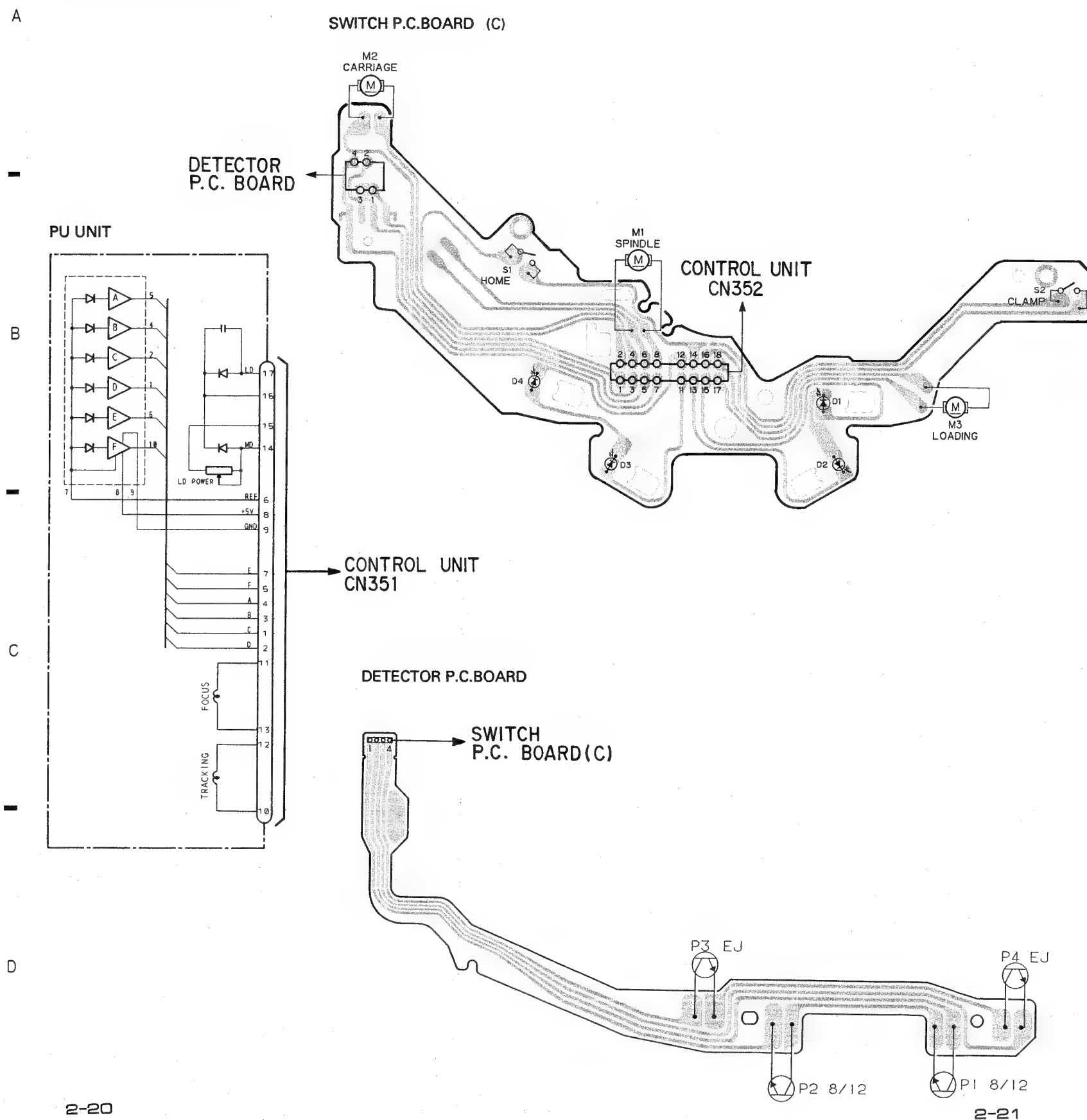




## 4. CIRCUIT DIAGRAM AND P.C.BOARDS PATTERN

## 4.1 CD MECHANISM MODULE

## ● Connection Diagram



2-20

1

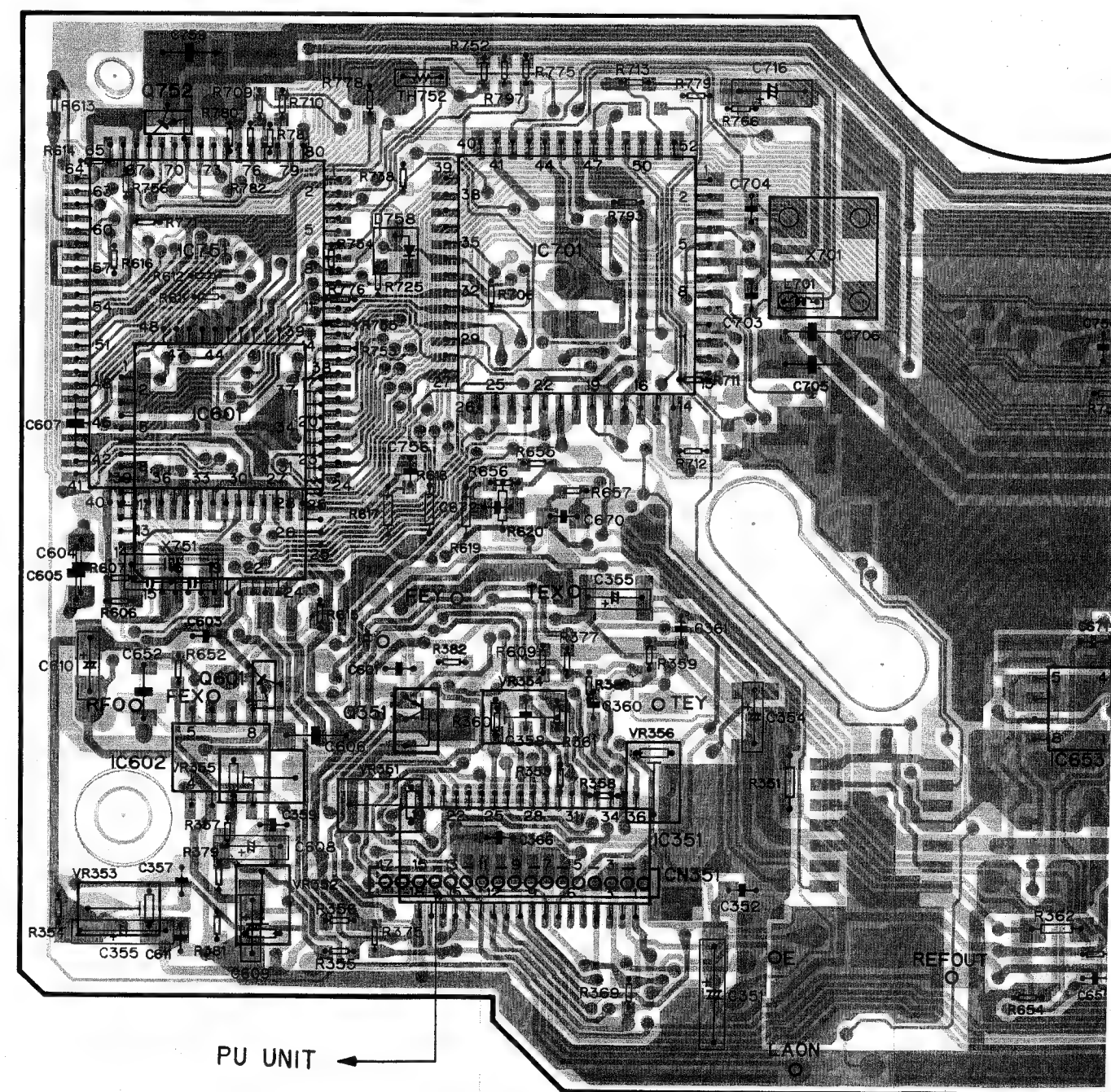
2

3

2-21

4

## CONTROL UNIT(CD MECHANISM MODULE)



2-22

6

5



CONTROL UNIT(CD MECHANISM MODULE)



Q755

Q752  
Q753

Q754

C751  
C701

0652

Q632

**Q654**

C601

Q601  
C653  
C654

C651  
Q351

C602

VR354

VR355

VR356

VR351

1

VR353  
VR350

VR352

1

1

100

10

1

9

c

**Fig. 10**

MOTHER P.C. BOARD  
CN755

PU UNIT

A diagram of a 12-pin D-sub connector. The connector has a D-shaped body with a central circular hole. Two pins are highlighted with circles and labels: 'P1 8/12' at the bottom left and 'P4 E/J' at the top right. The rest of the pins are shown as small dots along the top and bottom edges of the connector body.

/12

2-21

4

5

6

2-22

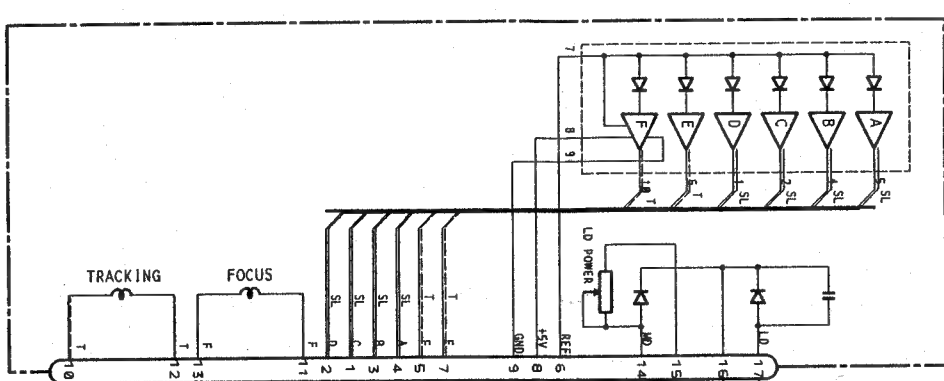
7

**Fig.10**

# ● Circuit Diagram

SL — SIGNAL LINE  
F — FOCUS SERVO LINE  
T — TRACKING SERVO LINE  
C — CARRIAGE SERVO LINE  
S — SPINDLE SERVO LINE

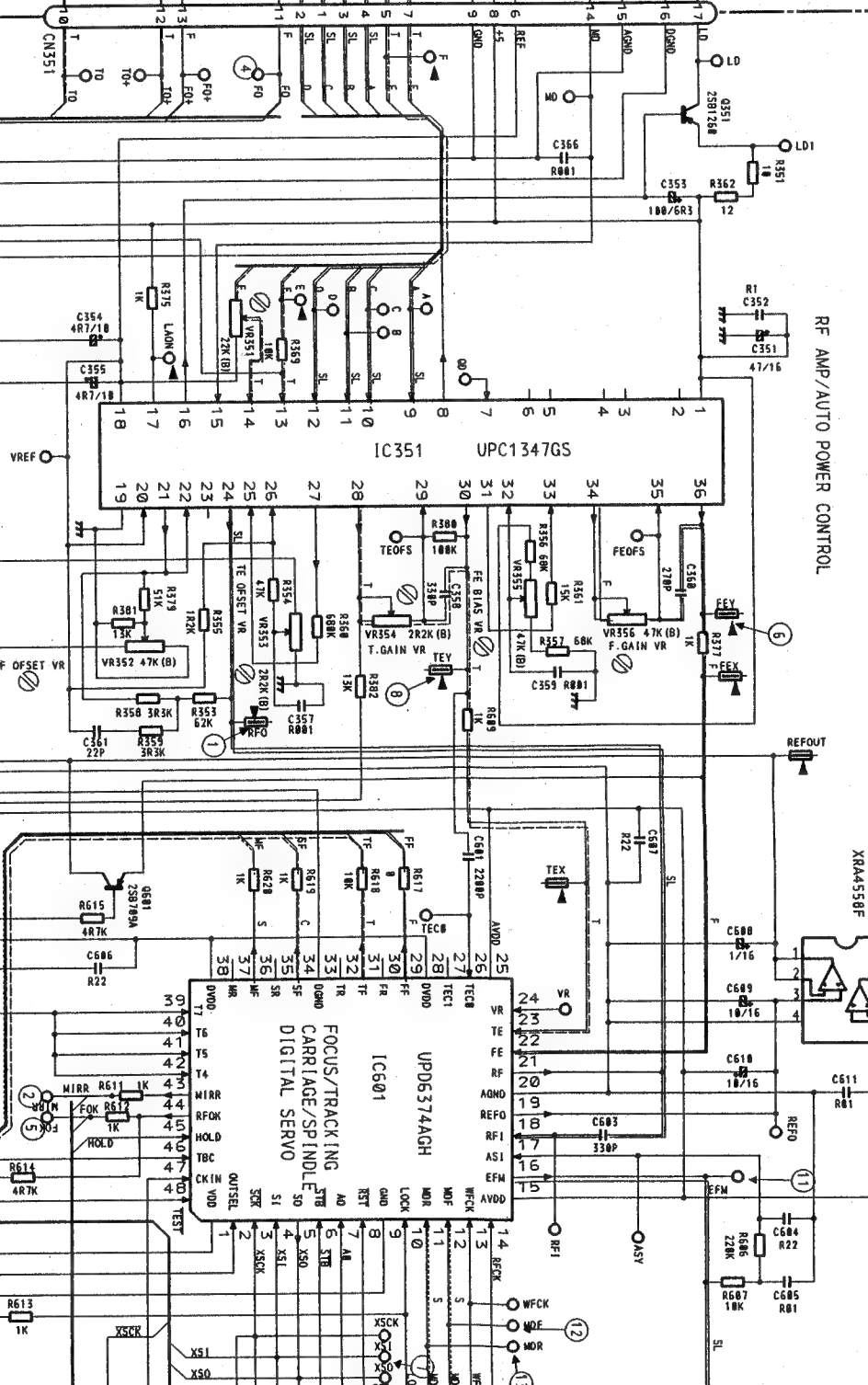
PV UNIT (CGY1020)



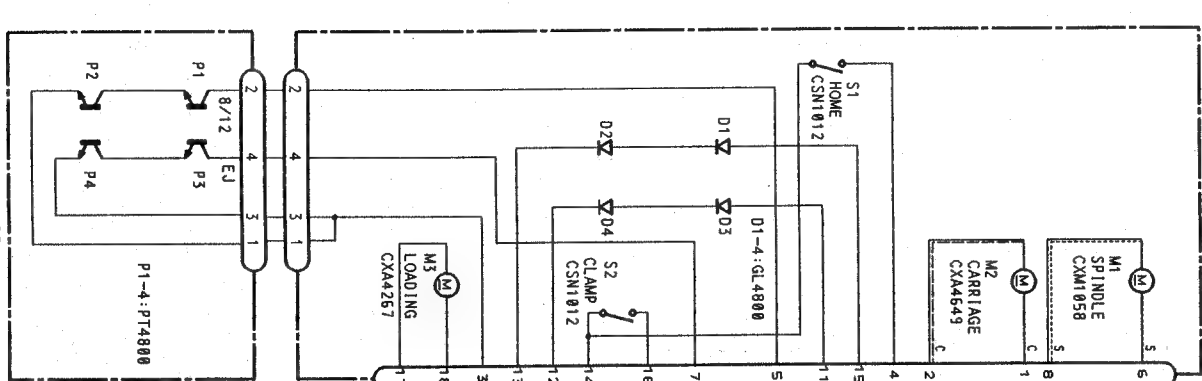
CONTROL UNIT

VR351: CCP1183  
VR352, 355, 356: CCP1185  
VR353, 354: CCP1177

RF AMP/AUTO POWER CONTROL



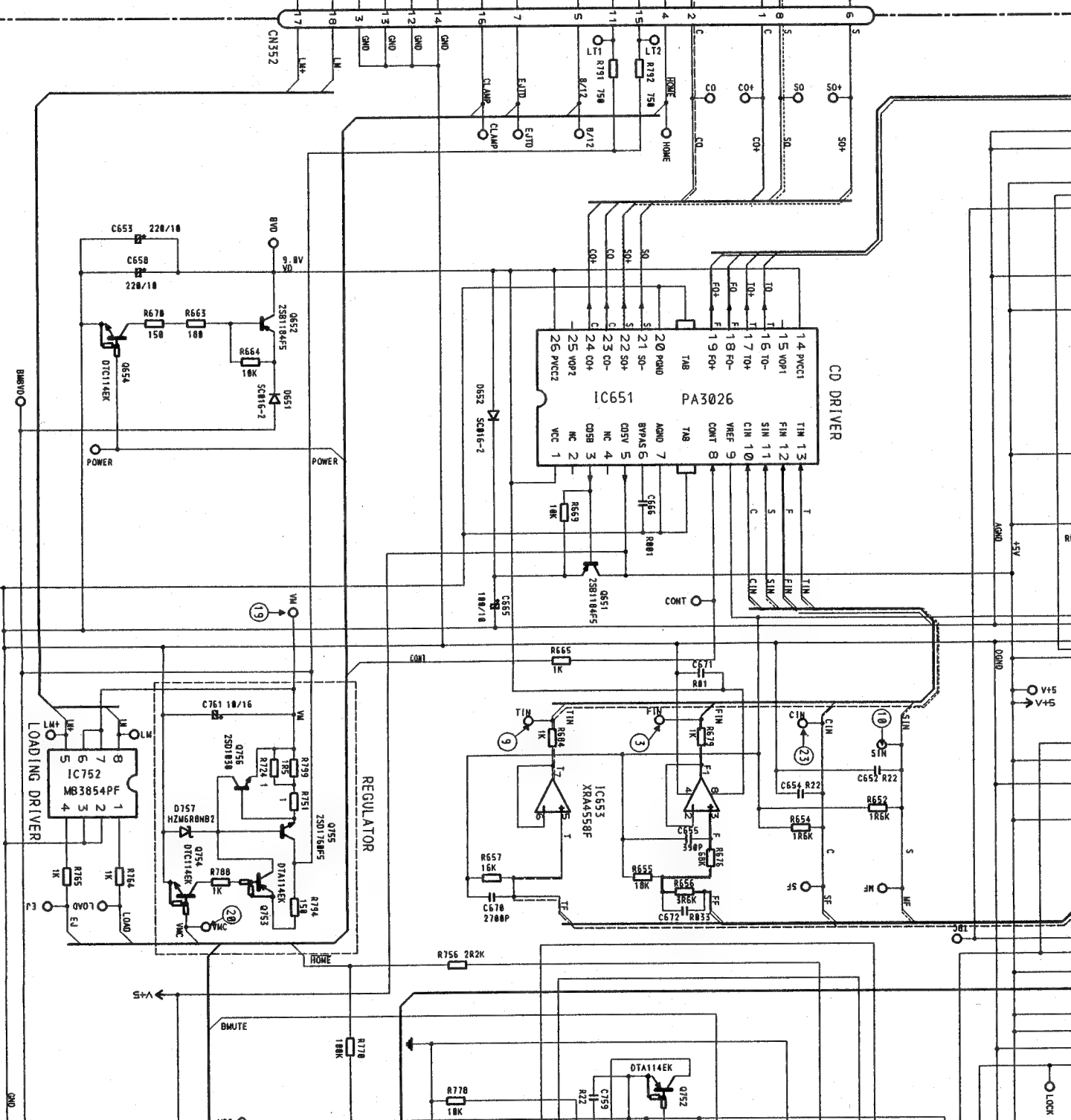
SWITCH P. C. BOARD(C)



CD DRIVER

IC651 PA3026  
TIN 13  
FIN 12  
SIN 11  
CIN 10  
WEF 9  
COM 8  
TAB 7  
TAS 6  
BYPAS 5  
CDIV 4  
NC 3  
CDSB 2  
NC 1

REGULATOR



SWITCHES:  
MISCELLANEOUS  
S1: HOME SWITCH.....ON-OFF  
S2: CLAMP SWITCH.....ON-OFF  
The underlined indicates the switch position.

2

3

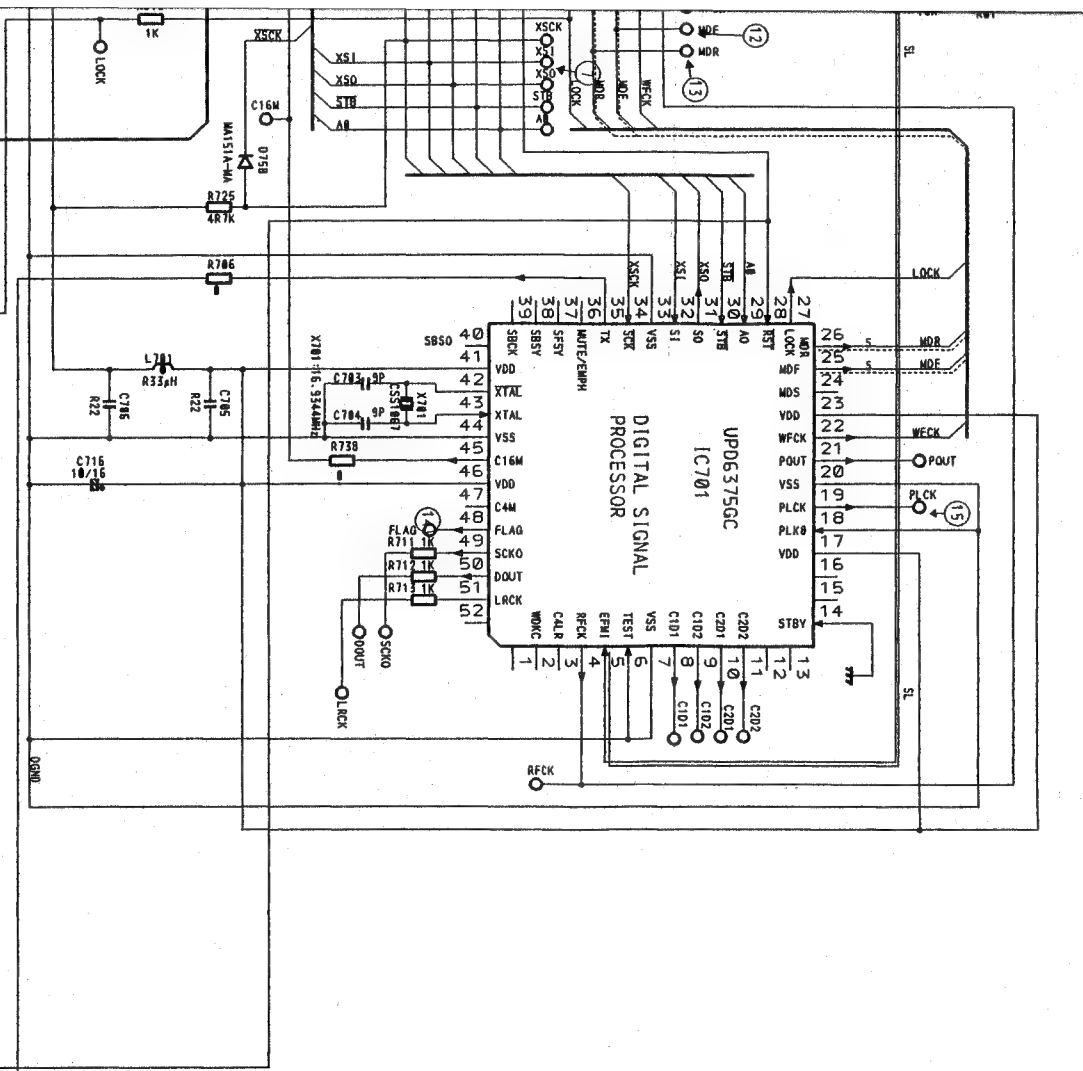
E-23

4



NOTE:  
⊞ Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.  
⊞ Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:  
2.2-2R2  
0.022-R022



MOTHER P.C. BOARD

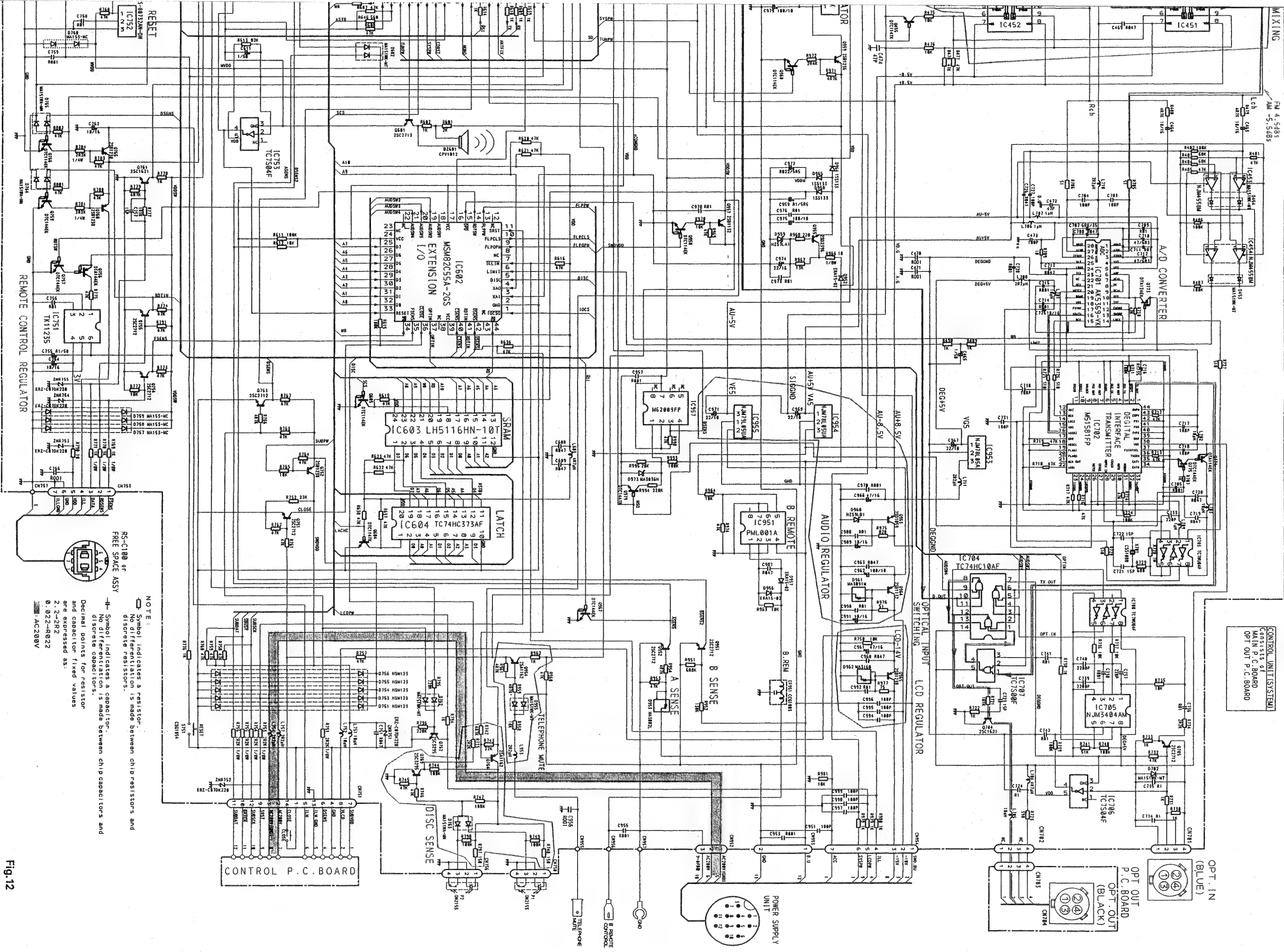


Fig.12



● Connection Diagram

MOTHER P.C. BOARD

RS-C100 or  
FREE SPACE ASSY

FM/AM UNIT

OPT OUT  
P. C. BOARD CN703

IC, Q ADJ  
Q519  
Q503  
IC706  
Q516  
Q502 Q705  
Q504 Q959  
IC956 Q501 Q960  
Q754 IC501  
Q755 Q761  
Q505 IC452  
Q854 Q507  
Q510 Q508  
Q757 IC751  
Q509  
Q506 IC451  
Q455  
IC851  
Q963  
Q456  
Q759 Q756  
Q453 Q454  
Q760 IC453 Q760  
Q763 Q964 IC454  
Q965 IC955  
IC604 IC502 IC951  
Q604 IC954  
Q955  
Q951  
Q979  
IC603 IC852  
Q954 IC854  
IC957  
Q770 IC754  
Q771 Q605 Q772  
IC707 Q704  
Q851  
IC601 IC602  
IC704  
IC702  
IC708  
Q958 Q967  
Q952  
Q856 Q978  
IC753  
Q957  
IC752 IC705  
Q774 Q977 IC703  
Q766 Q765 Q602  
Q775 Q753 Q751  
Q767 Q762 Q976  
Q752 IC953 Q753  
Q773 IC701  
Q764  
Q769  
Q601  
Q768

TC601

CONTROL UNIT  
(CD MECHANISM MODULE)  
CN752

CONTROL P. C. BOARD  
CN901

POWER SUPPLY UNIT

MASTER  
/SLAVE

IP BUS  
INPUT

IP BU  
OUT

POWE  
UNIT

M7  
1  
2  
3  
4  
5  
OF  
5

2-30

2-29

4 P2

5

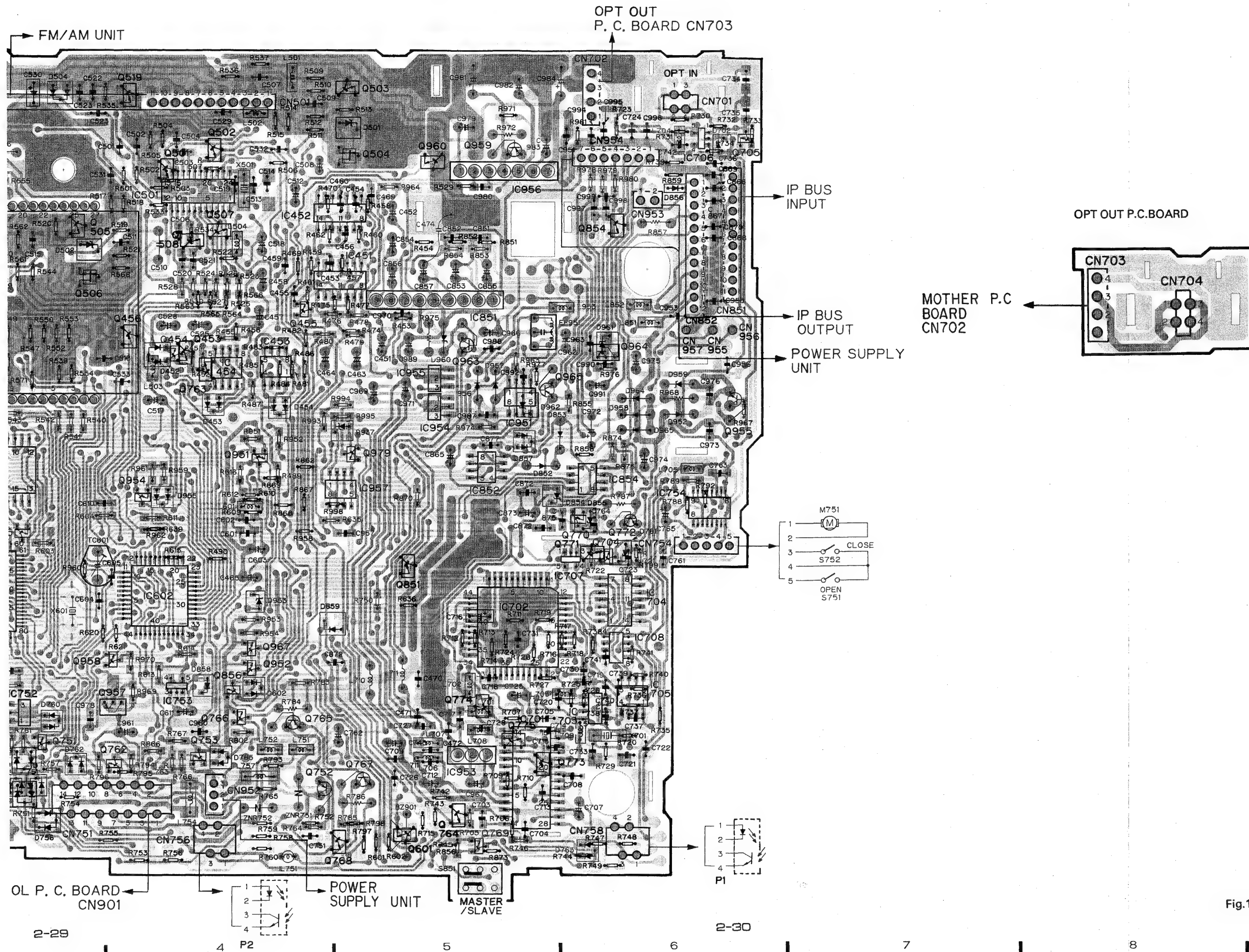
6

1

2

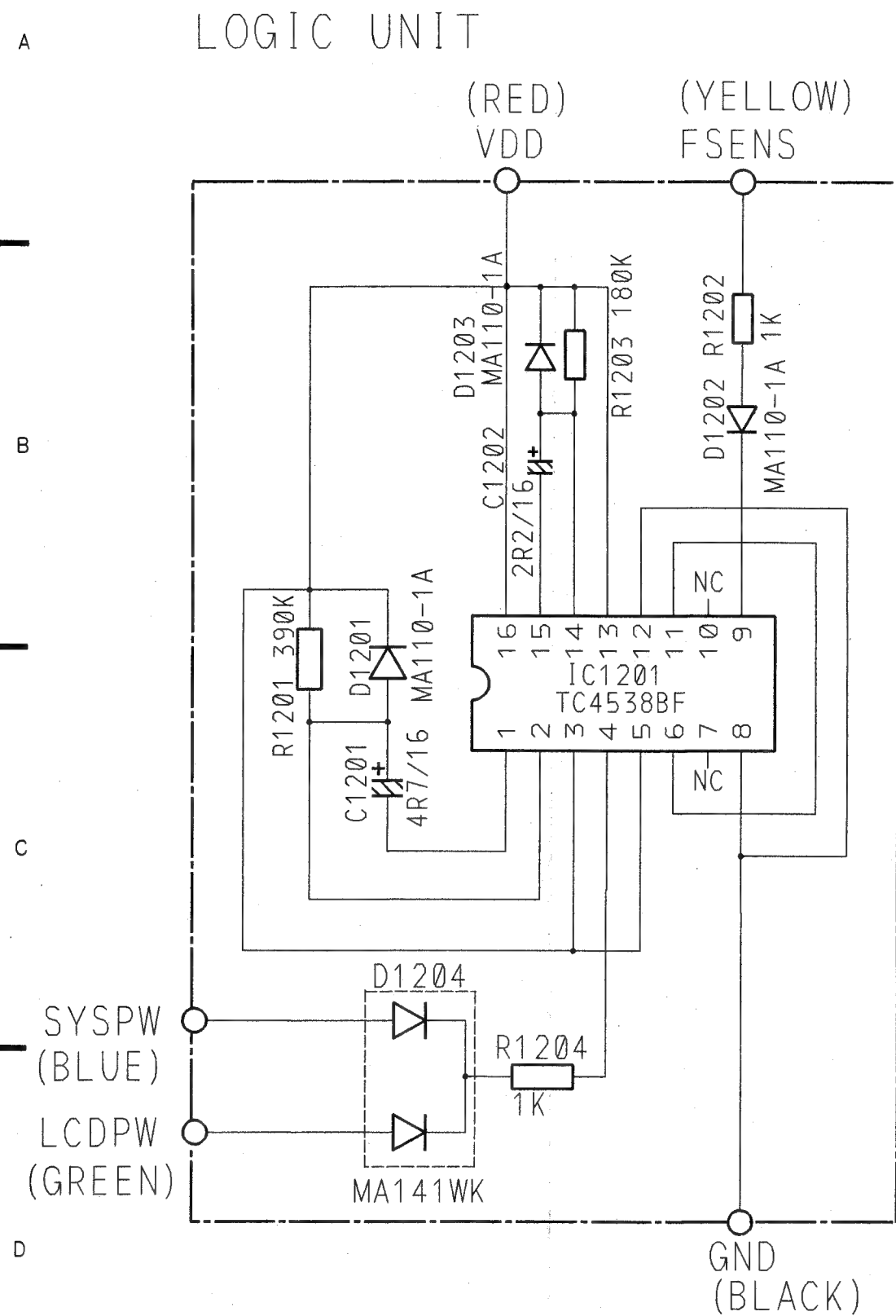
3





### 4.3 LOGIC UNIT (UC,ES)

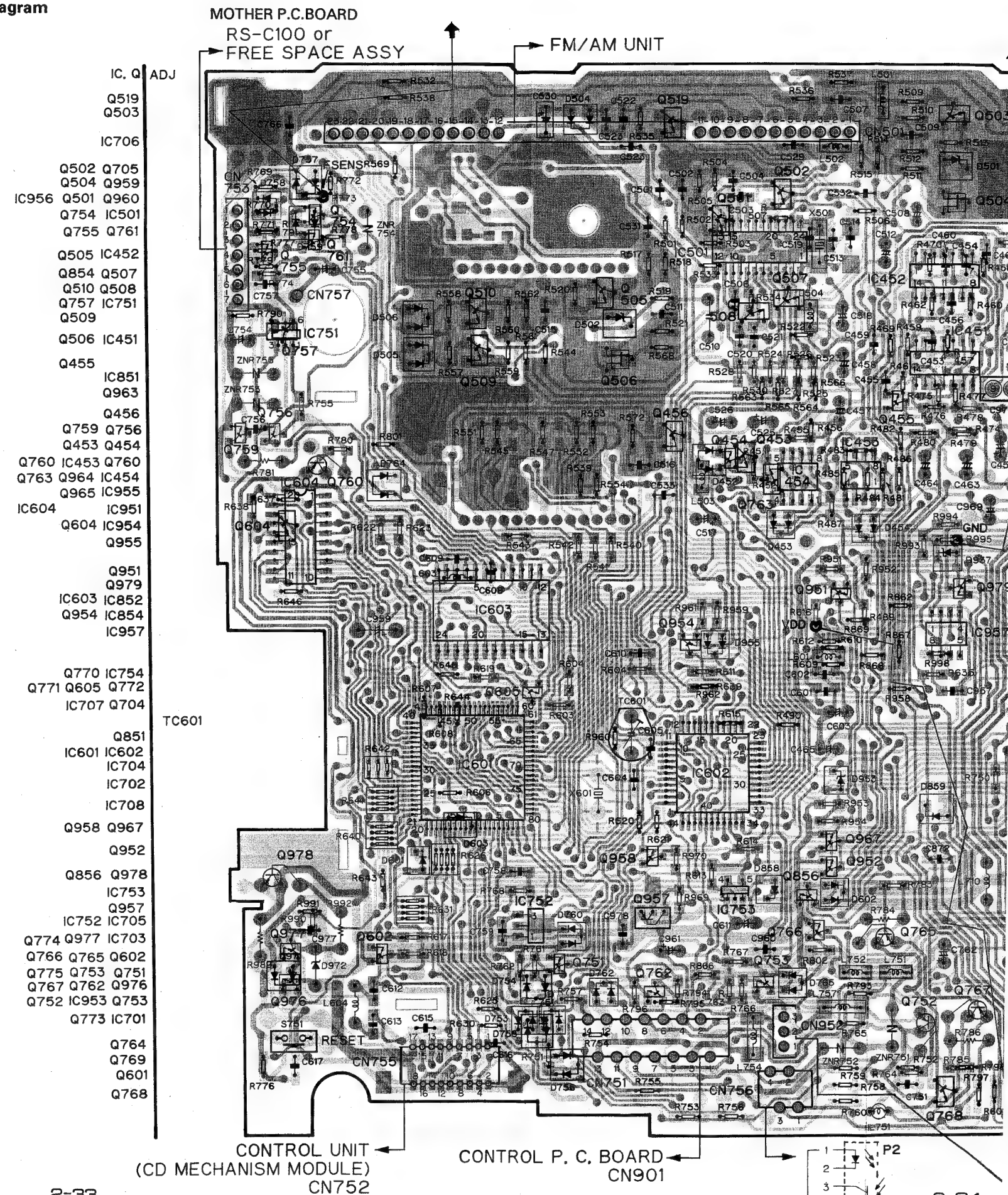
### ● Circuit Diagram



**Fig.14**

#### 4.4 CONTROL UNIT (SYSTEM) (UC,ES)

### ● Connection Diagram





# CONTROL UNIT (SYSTEM) (UC,ES)

## Injection Diagram

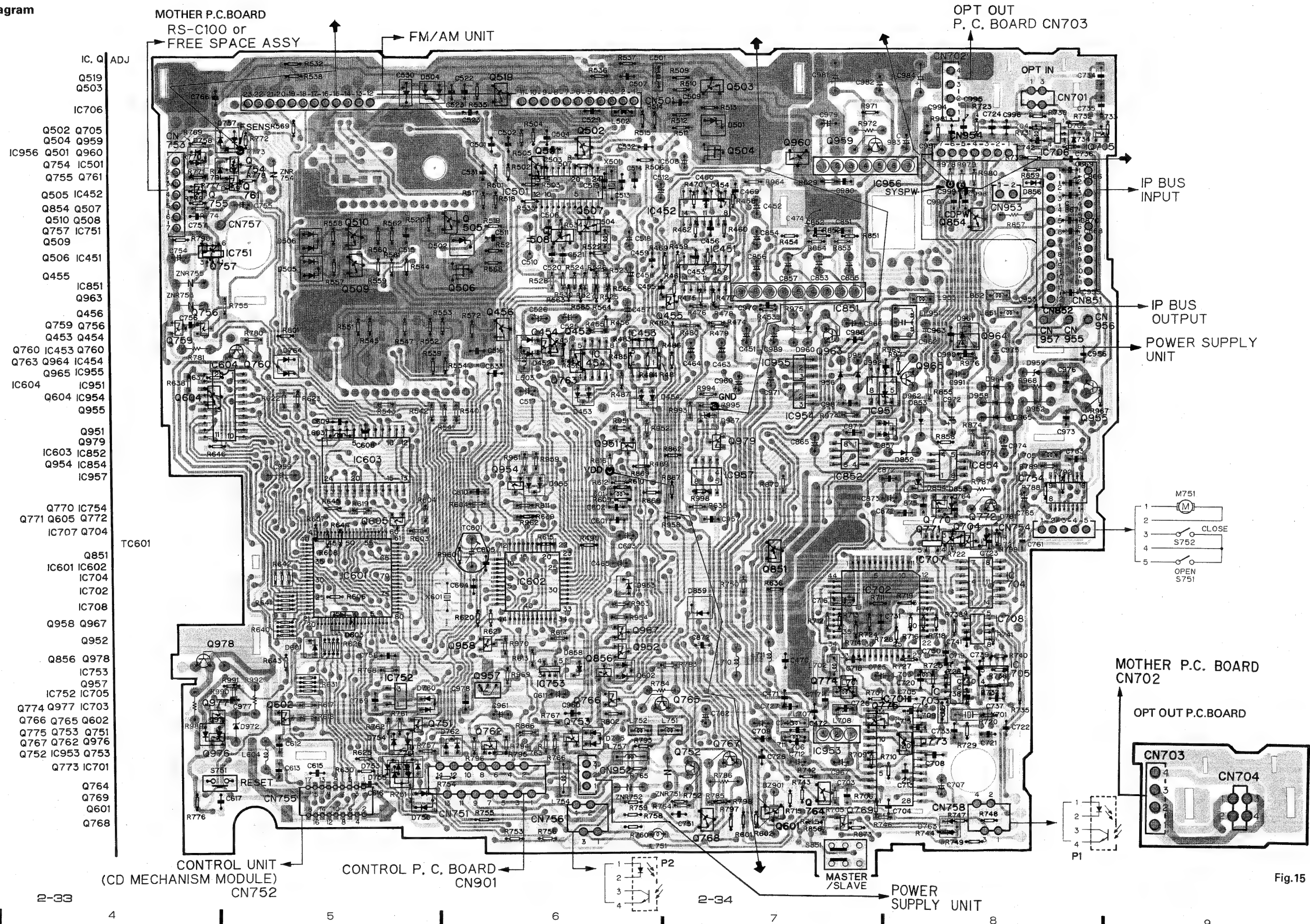


Fig.15





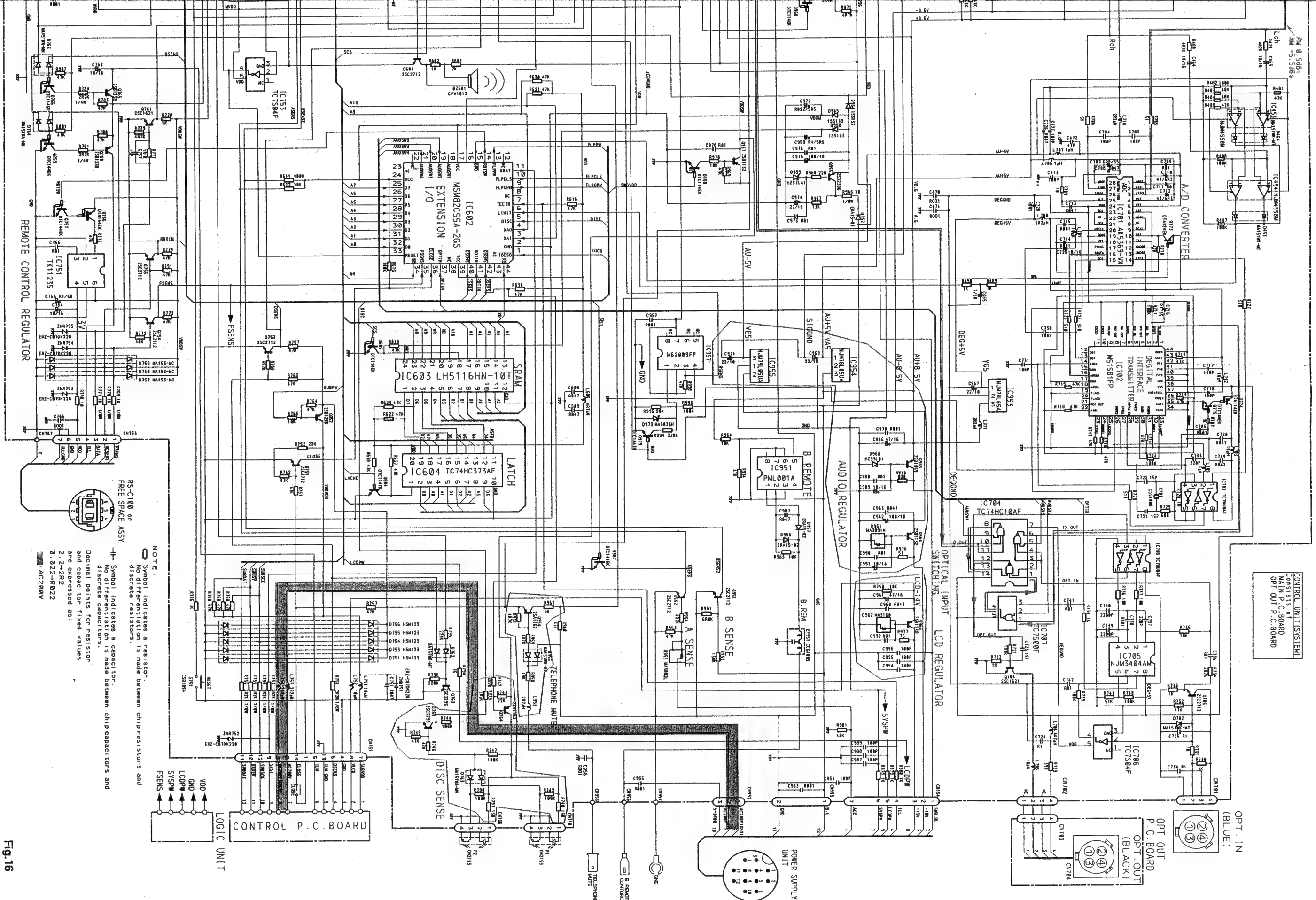


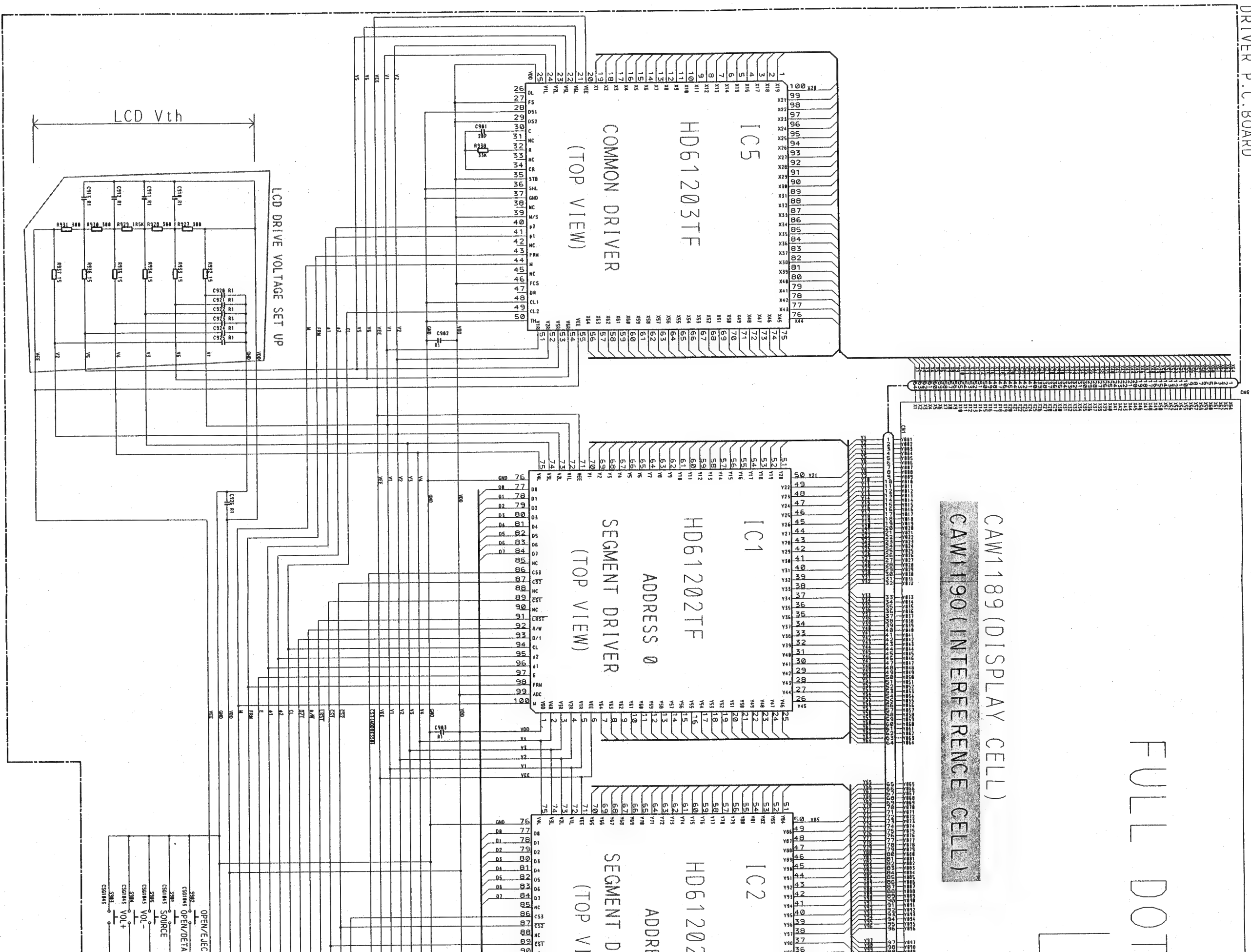
Fig.16

4.5 DRIVER P.C.BOARD  
● Circuit Diagram

DRIVER P.C.BOARD

FULL DOT

CAW1189 (DISPLAY CELL)  
CAW1190 (INTERFERENCE CELL)



NOTE:  
□ Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.  
+ Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

KEY BOARD UNIT  
Consists of  
CONTROL P.C. BOARD  
DRIVER P.C. BOARD

# DOT MATRIX (64X256)

## LCD

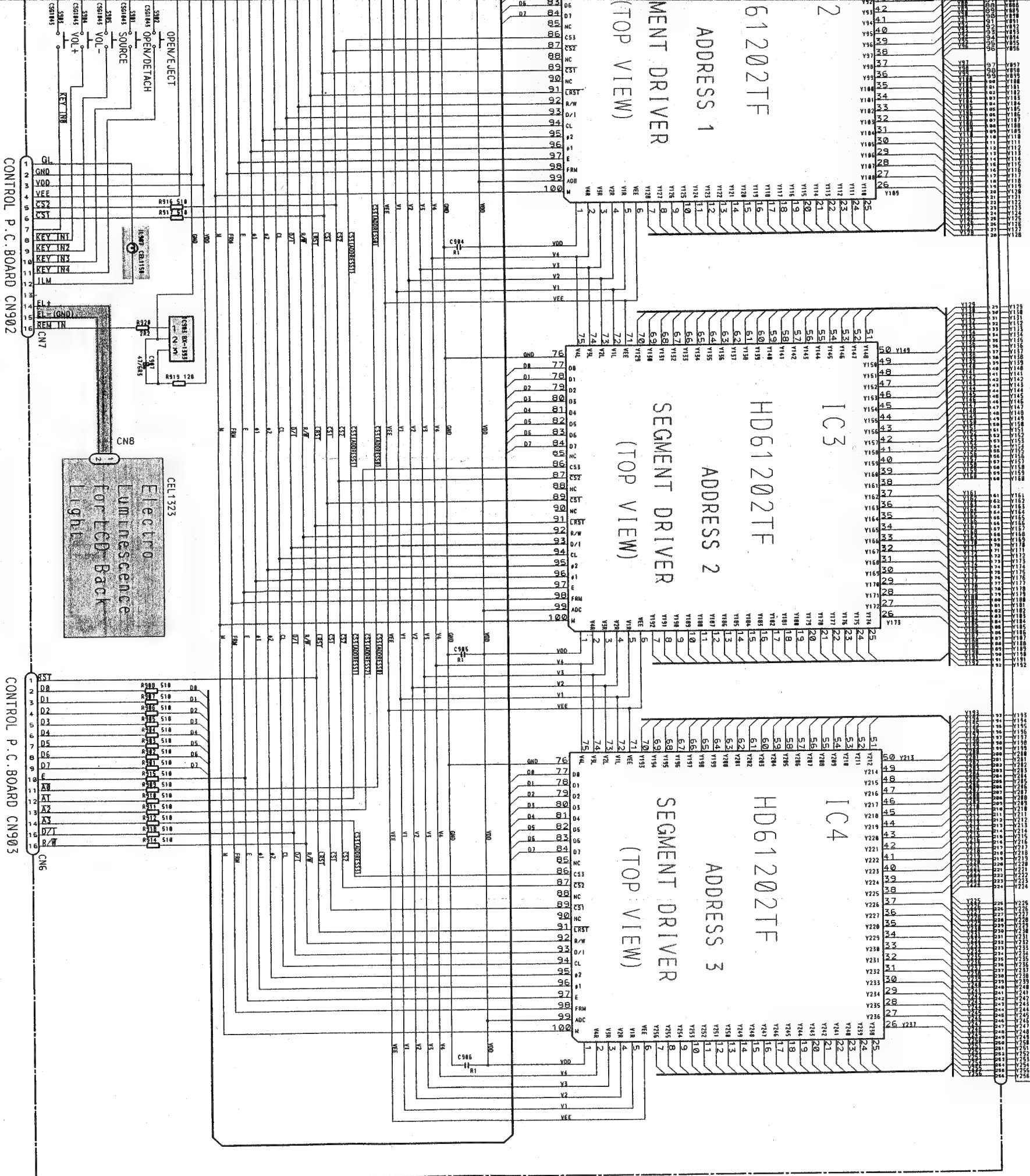


Fig.17



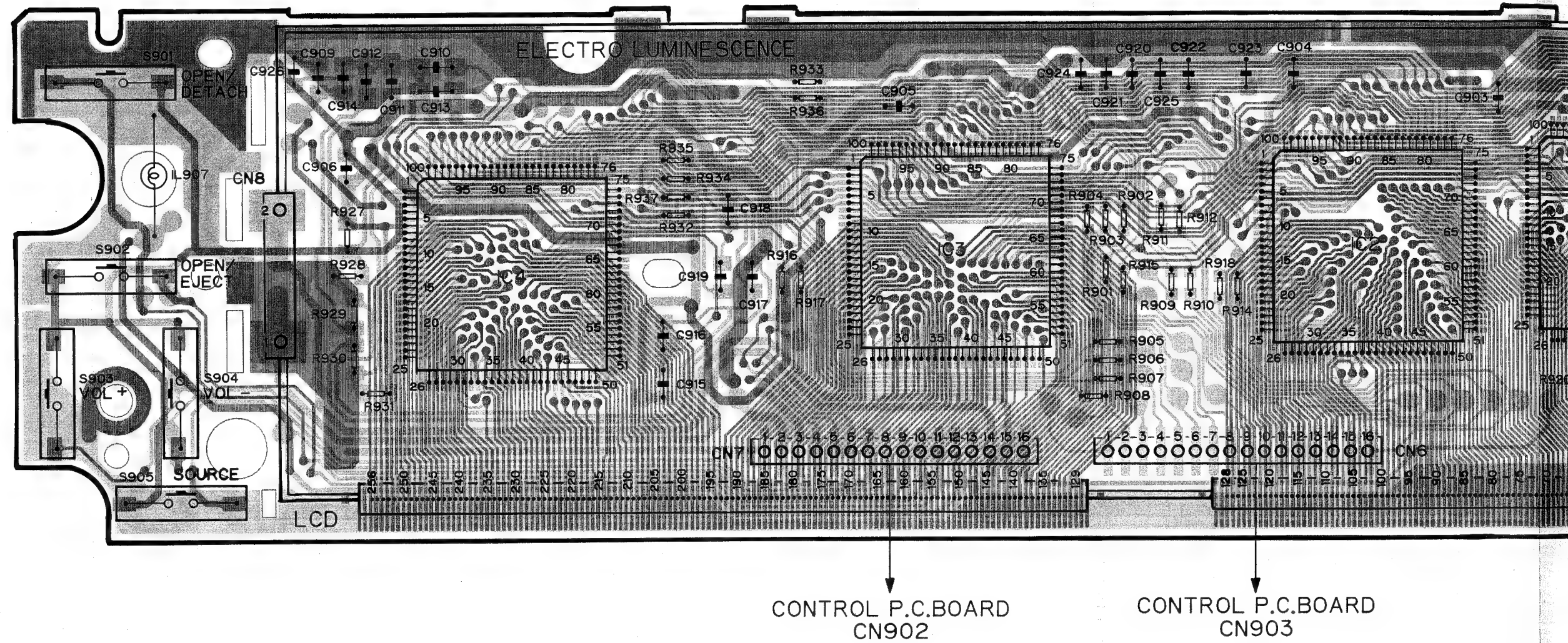
● Connection Diagram

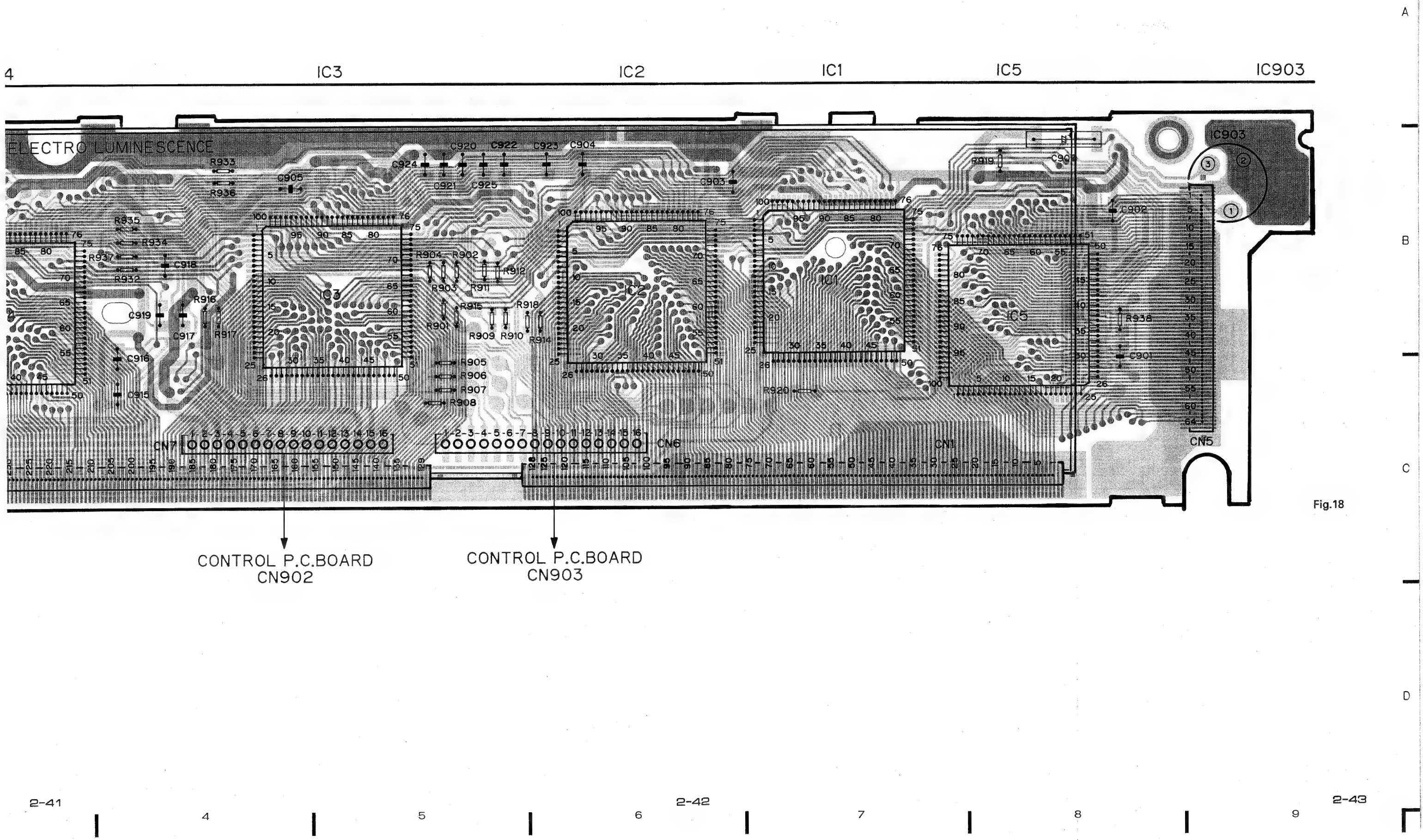
IC. Q

IC4

IC3

IC2







## 4.6 CONTROL P.C.BOARD AND DISPLAY UNIT

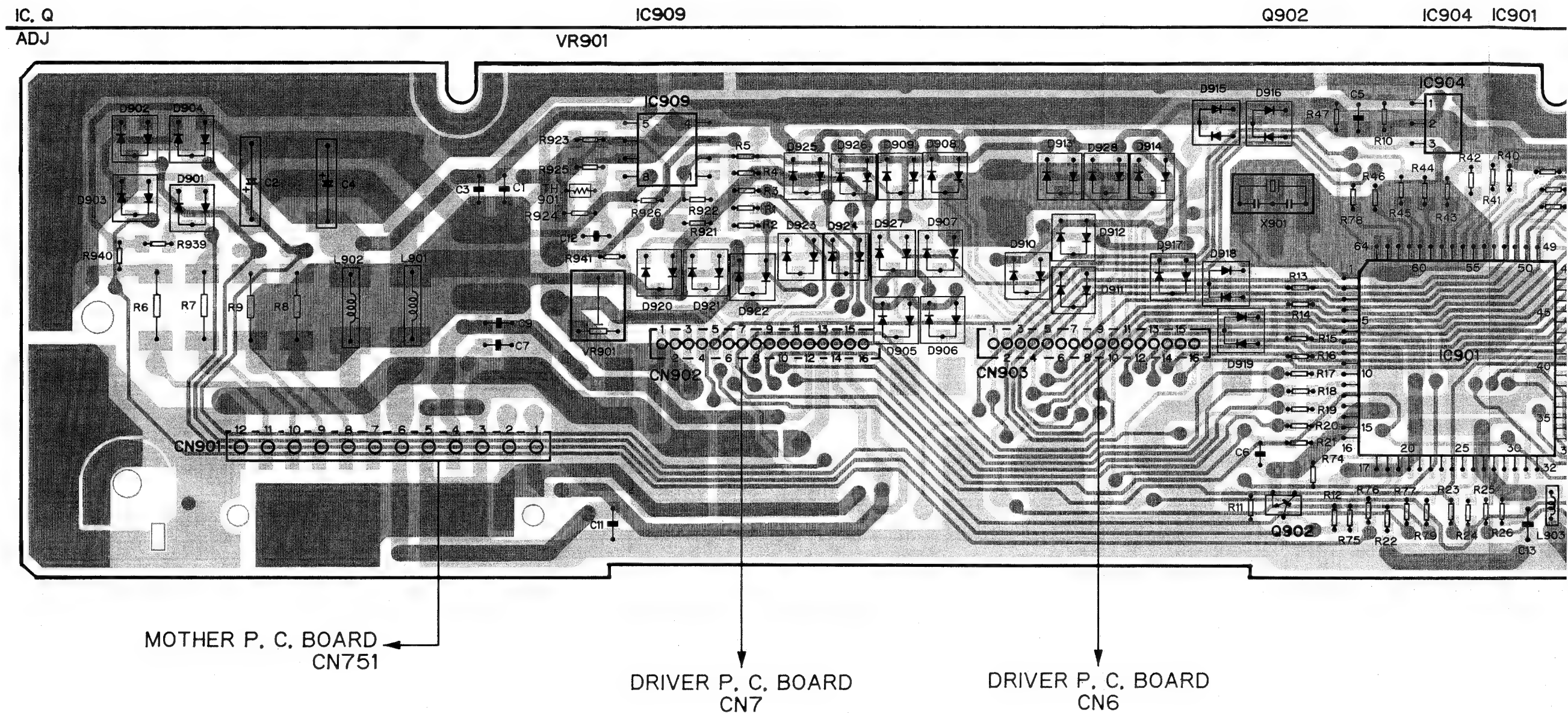
● Connection Diagram

A

B

C

D



IC909

Q902

IC904 IC901

IC908 IC907

IC902

901

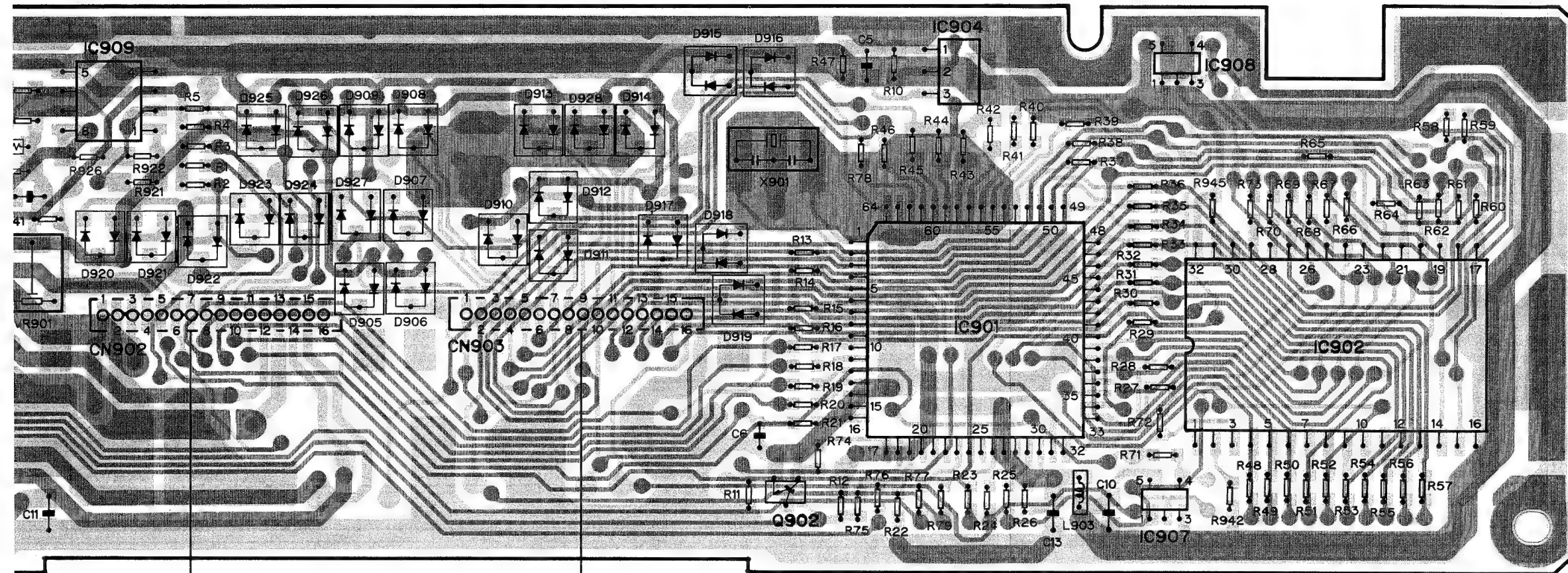


Fig.19

DRIVER P. C. BOARD  
CN7

DRIVER P. C. BOARD  
CN6

## A



C

D

3

2-47

2-48



E

● Connection Diagram

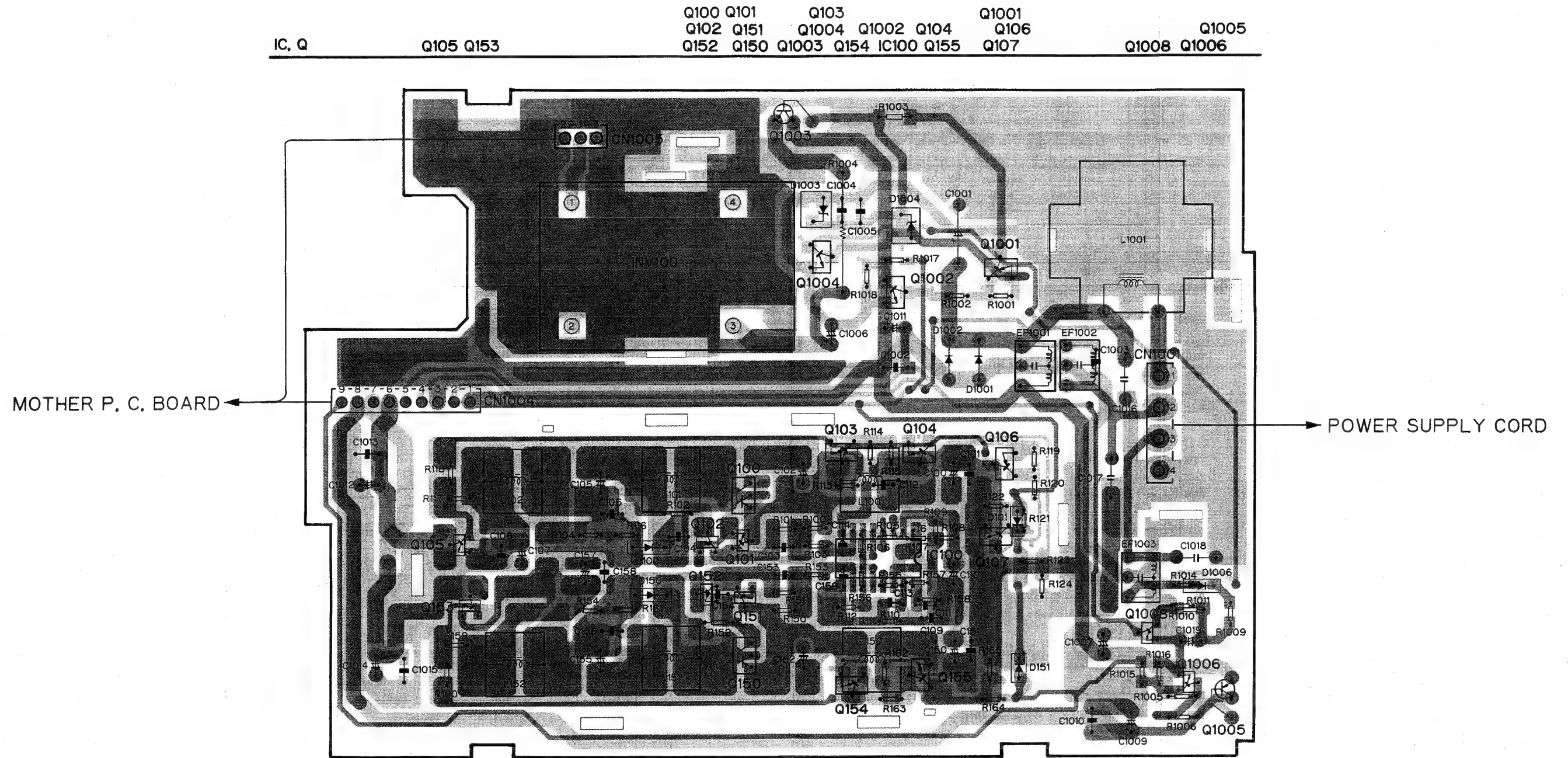


Fig.22

## 4.8 FREE SPACE ASSY

## ● Circuit Diagram

## NOTE:

□ Symbol indicates a resistor.  
No differentiation is made between chip resistors and discrete resistors.

—||— Symbol indicates a capacitor.  
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:  
2.2→2R2  
0.022→R022

CONNECTOR  
P.C. BOARD

## MAIN P.C. BOARD

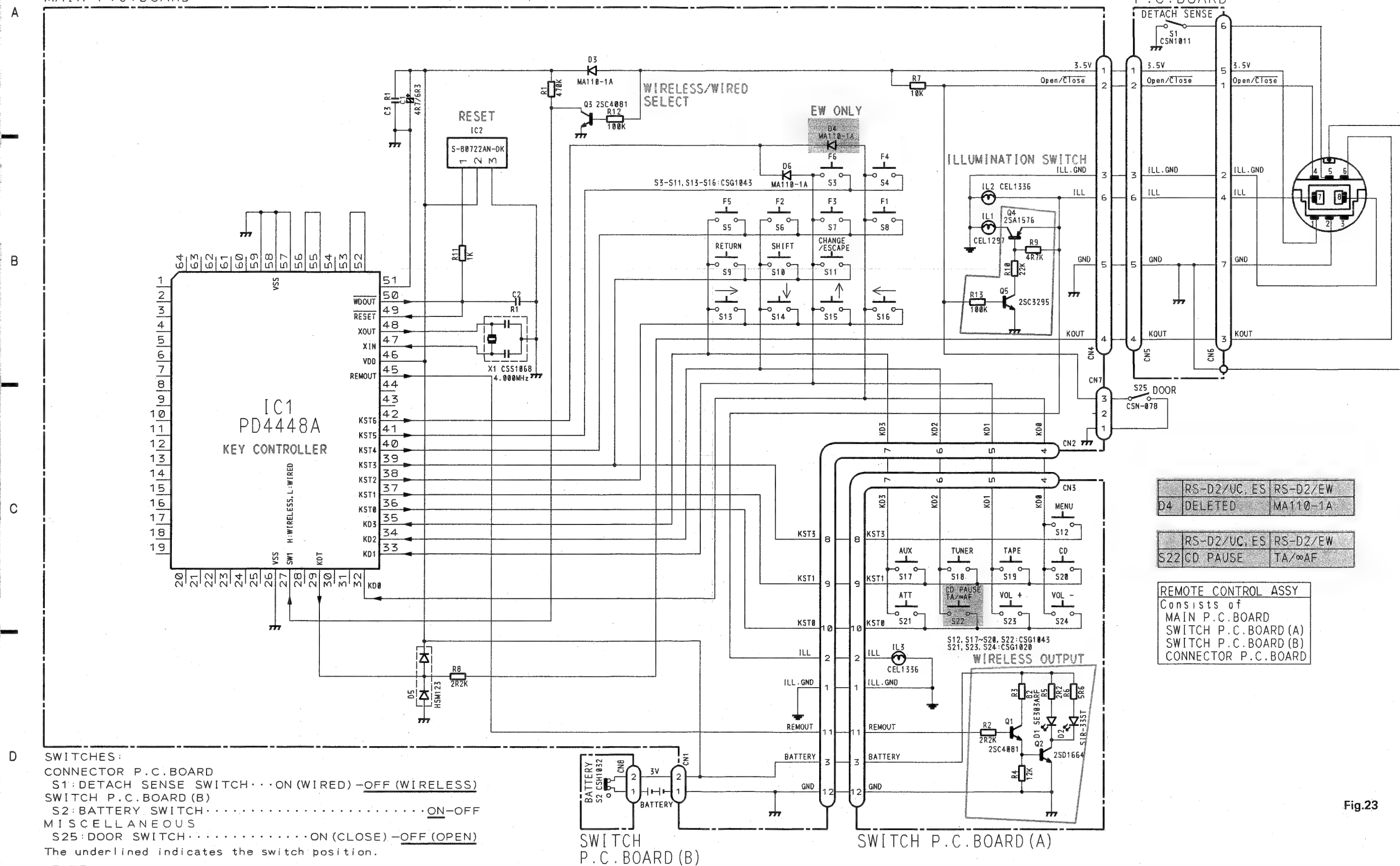


Fig.23

**Fig.24**







● Connection Diagram

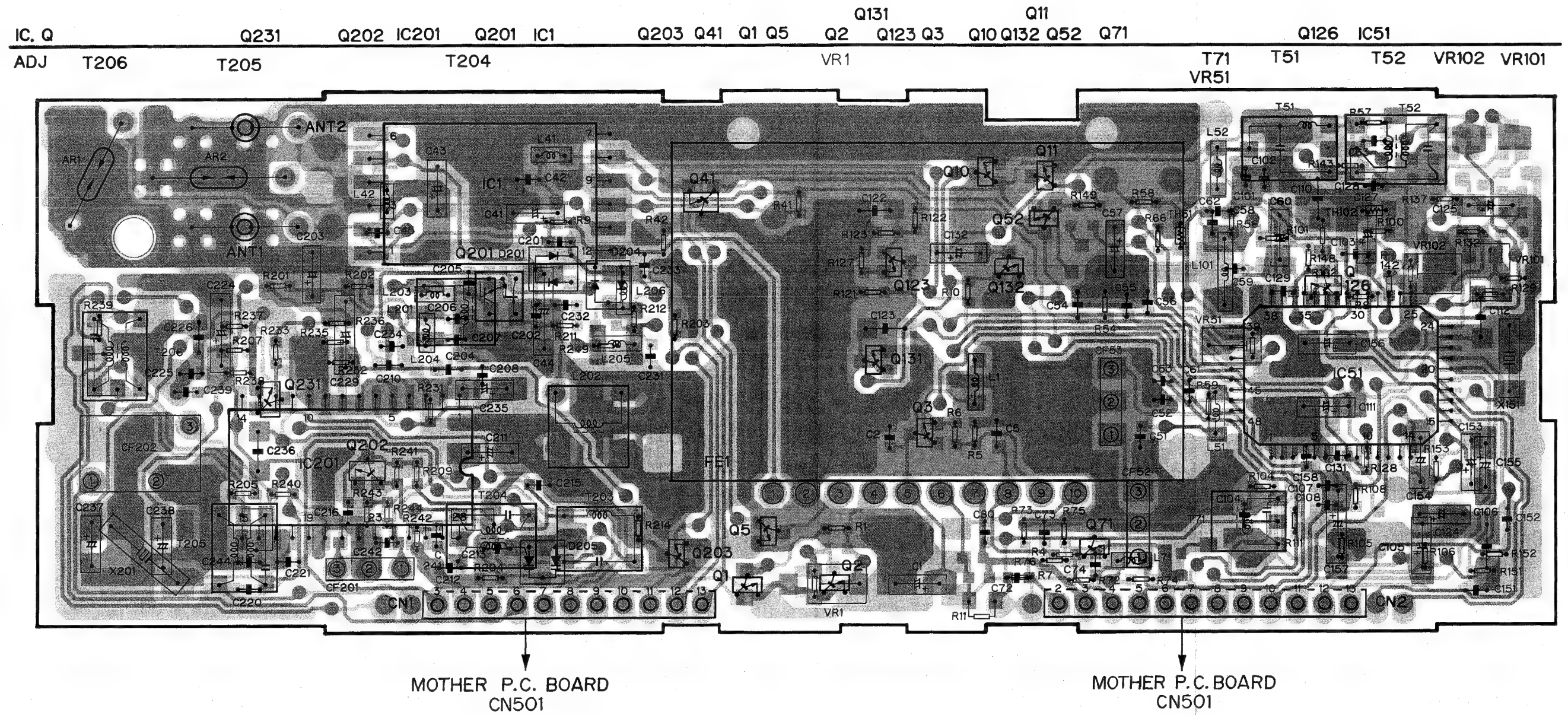


Fig.26

## 4.10 FM/AM UNIT(EW)

## ● Circuit Diagram

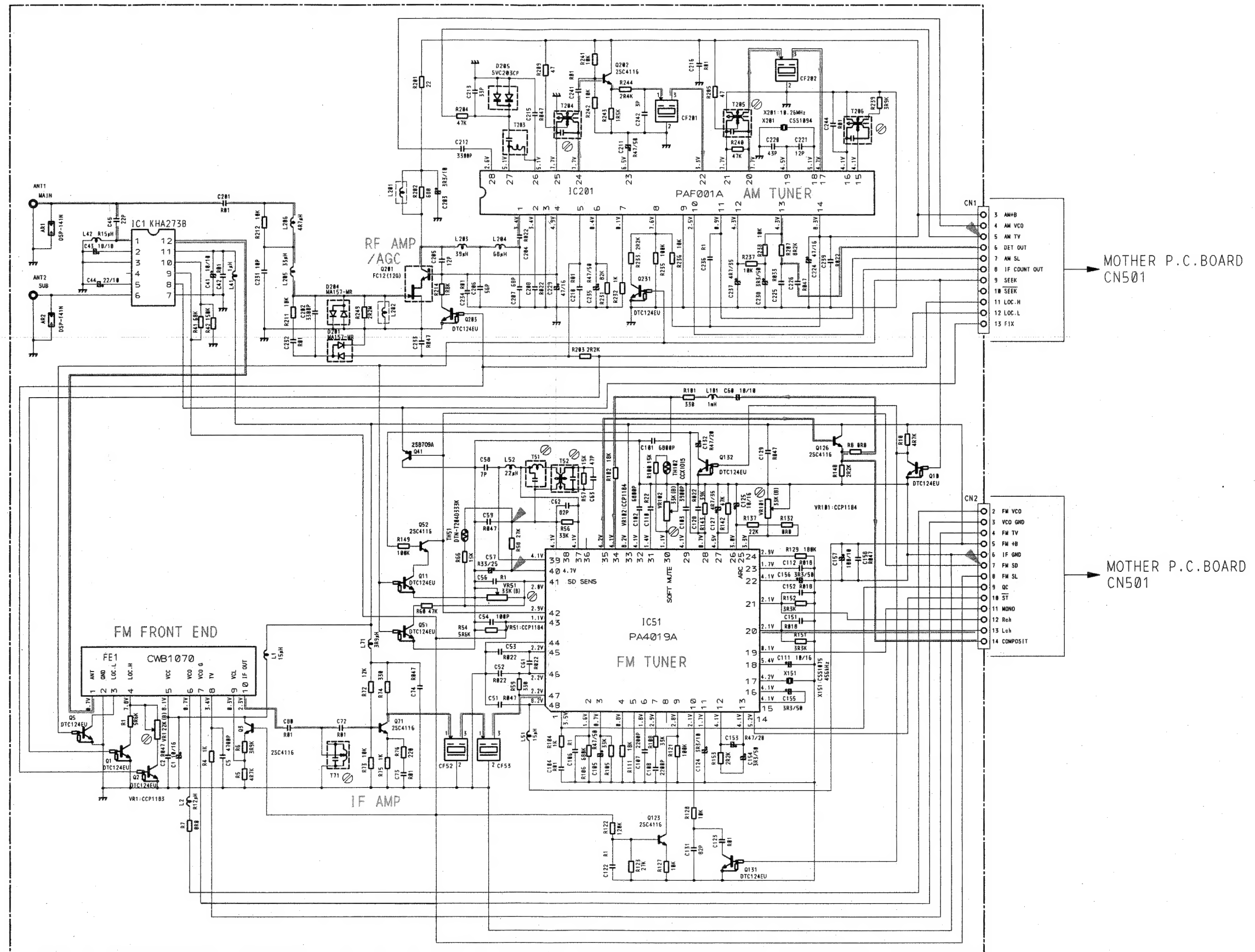


Fig.27



● Connection Diagram

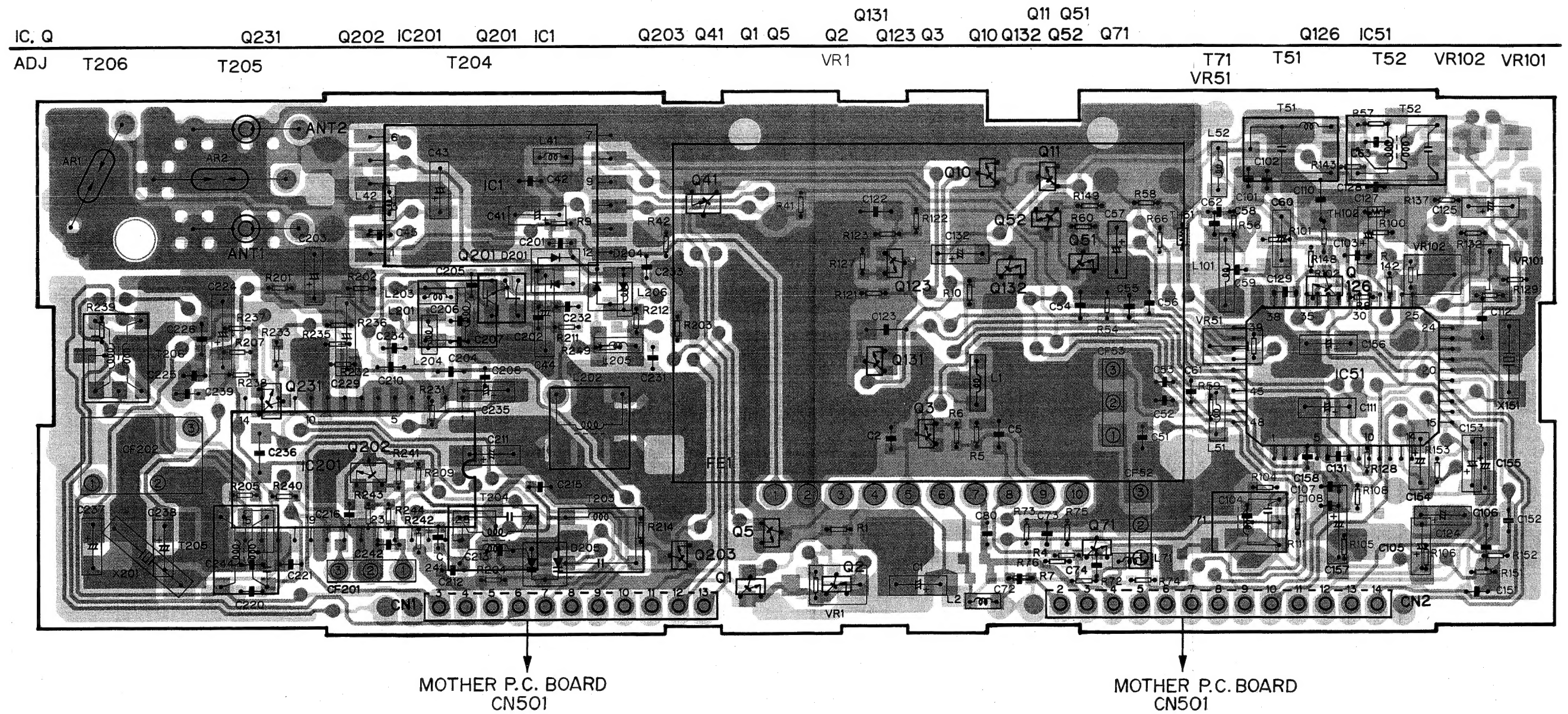


Fig.28





## E



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